

On Dec 5, 2017, Huawei and patterns of CNCF community will host a DevOps Meetup of Kubernetes in Austin. In this event, you will get over 3 sessions from Huawei, Loodse, VMWare and CoreOS. These topics focus on DevOps, including CI/CD, modern infrastructure, networks and others in Kubernetes ecosystem.

Time & Location

Room: Meeting Room 9C, Level 3 at Austin Convention Center

Capacity: 70

Set-up: Classroom

Date: Tuesday, December 5

Time: 2:00pm - 5:00pm

Topics

• Easier Deployment of CNCF Stacks in Real Production Environments

Zhen Ju, a senior engineer, Golang developer at Huawei Technologies, focusing on Docker, DevOps and open source container technologies. He is interested in web development, open source hardware and exploring new computer technologies. Zhen is also one of the translators of "The Docker Book(Chinese Edition)".

Kubernetes is a great success in container orchestration and management, but building Kubernetes clusters in real production environments to enterprise standards, especially on premises, is hard. And if you need to build many of them (as we do) it becomes imperative to make this process quicker, easier and less error-prone. So we built Singular, a component of Huawei's open source ContainerOps project. Singular can build highly available, scalable and configurable Kubernetes clusters and networks. Itself built on Kubernetes, Singular can also deploy many other CNCF technologies, so users can select which parts of the CNCF stack they need, how the stack should be configured, and Singular does the rest. Other cloud providers, including AWS, Google Container Engine and Azure are also supported.

In this talk, we will explain in detail the design and implementation of Singular, and demonstrate how it's used in deploying complete CNCF stacks in different environments, both on premise, and in public clouds. Perhaps afterwards attendees will want to use it, or better still contribute to the open source code base.

• Let a Kubernetes cluster manage its worker nodes by itself

Sebastian Scheele is the CEO and co-founder of Loodse. With Loodse, he wants to empower IT teams to focus on their core: write groundbreaking applications and design the digital future. Sebastian is passionate about the potential of container and cloud native technologies and has been a major contributor to the development of the Open Source projects K8SNiff and Kube-machine. He is a KubeCon EU and Cebit speaker and has published several articles on Kubernetes in leading tech media including The New Stack

Why not using Kubernetes to manage and deploy worker nodes in a generic way? In a way which works on different cloud providers and also on bare-metal. This talk will introduce the concept of NodeClass and NodeSet which will allow you to utilize kubectl to deploy your nodes. Additionally, you will learn how to enhance the concept for specific requirements with your own controller.

• **Efficient and Secure Container Image Management for Kubernetes**

Haining Zhang (Henry) is the Chief Architect of China R&D, Cloud Native Apps. His primary role is to lead the development and incubation of projects on emerging technology, including containers, blockchain and IoT. He was one of the first evangelists in China for open source PaaS Project Cloud Foundry. Henry is also the creator and architect of Project Harbor - an open source enterprise class registry. During his years in VMware, Henry has been working in various projects including Cloud Foundry, Virtual SAN, Big Data Extension and Harbor. Henry is the coauthor of two books: "Blockchain Technical Guide" and "Software Defined Storage: Principle, Practice and Ecosystem".

As container technology become widely adopted in the industry, how to manage containerized applications posts new challenges to administrators. The management challenges come from two aspects: the dynamic container runtime and the static container images. In this presentation, we will focus on the management of container images and review the challenges to enterprises. We will discuss how to manage container images efficiently and securely for Kubernetes. Challenges to be addressed include RBAC (Role Based Access Control) of images, image consistency, large scale image distribution, image replication, image provenance and vulnerability scanning. The open source registry Project Harbor will be introduced as part of the solution to these challenges.

The session will cover these topics:

1. Introduction to container life cycle and Project Harbor
2. Container image management basics
3. Container image advanced features, like replication, RBAC, Notary
4. Case Study

• **Kubernetes Day 2: Monitoring**

Frederic Branczyk is an engineer at CoreOS, where he contributes to Prometheus and Kubernetes to build state-of-the-art modern infrastructure and monitoring tools. Frederic discovered his interest in monitoring tools and distributed systems in his previous jobs, where he used machine learning to detect anomalies indicating intrusion attempts. He also worked on projects involving secrets management for distributed applications to build sane and stable infrastructure.

There are plenty of ways to setup a Kubernetes cluster, kubeadm, bootkube, kargo, and a lot more, but what happens after setup? Monitoring your cluster health as well as the workload running in the cluster is one of the most important aspects of operating a Kubernetes cluster.

The Prometheus monitoring system is a match made in heaven for monitoring Kubernetes clusters. Not only are many concepts similar, but Prometheus is able to keep up with the dynamic environment that Kubernetes holds.

In this talk Frederic will describe and showcase best practices of end to end monitoring using Prometheus with the Prometheus Operator, from metric collection to notifying operators about alerts.