Preparation Guide *for*

Certified

kubernetes

Administrator Exam

Who AM I

DevOps Engineer at MotherSon Sumi

Certified Kubernetes administrator

@yrsiam

Agenda

- Kubernetes Certifications
- Why should I get certified.
- About the exam.
- Exam environment
- Upcoming Program changes
- Curriculum
- Resources for preparation
- Tips

Why should I take this certification

Validate your skills.

Stand out from the pack.

Credibility & value in job market.

The Growing Importance of Kubernetes

Managed Kubernetes Service

- EKS
- AKS
- GKE
- ...

Vendor supported Paas

- OpenShift
- PKS
- ...

Fastest growing choice for Hybrid & Multicloud

Value Proposition

- **Individual**

  Certification allows Administrators & Developers to prove a level of expertise.

- **Partner Organizations**

  Certification allows professional services organizations to prove a level of expertise.

- **Platform Vendors**

Certification gives end user confidence that a given kubernetes product will have a high level of common functionality.

Kubernetes Certifications.

- Certified Kubernetes Administrator (CKA)
- Certified Kubernetes Application Developer (CKAD)
- Kubernetes Certified Service Provider (KCSP)
- Software Conformance (Certified Kubernetes)

About the exam

- Created by CNCF
- Performance based problems
- Cost $300
- 1 year validity to take the exam after registration
- One free retake
- Kubernetes v1.18
- 3 hours
- 24 probelms
- Passing score is 74%
- Scoring is automated & results are emailed within 36 hr.
- Certificate is valid for 3 Years.

Exam Requirements

- A Laptop or PC
- Current version of Chrome or Chromium
- Reliable internet access
- Microphone
- Webcam
- Clutter-free work area, Clear walls, Lighting

Exam Environment

- 6 k8s cluster
- cli to run commands
- Notepad
- Proctor
- Browser to access information at https://kubernetes.io

Upcoming Program Changes

CKA 2020: Available September 01, 2020 00:00 UTC

Duration of Exam: 2 hours

Software Version: Kubernetes v1.19

Curriculum

- Application Lifecycle Management – 8%
- Installation, Configuration & Validation – 12%
- Core Concepts – 19%
- Networking – 11%
- Scheduling – 5%
- Security – 12%
- Cluster Maintenance – 11%
- Logging / Monitoring – 5%
- Storage – 7%
- Troubleshooting – 10%

CKA 2020: Available September 01

- Cluster Architecture, Installation & Configuration – 25%
- Services & Networking – 20%
- Troubleshooting – 30%
- Workloads & Scheduling – 15%
- Storage – 10%

Application Lifecycle Management

- Understand deployments and how to perform rolling update and rollbacks
- Know various ways to configure applications
- Know how to scale applications
- Understand the primitives necessary to create a self-healing application

Installation, Configuration & Validation

Install Kubernetes Masters and Nodes

Configure secure cluster communications

Provision underlying infrastructure to deploy a Kubernetes cluster

Install and use kubeadm to install, configure, and manage Kubernetes clusters

Core Concepts

- Understand the Kubernetes API primitives
- Understand the Kubernetes cluster architecture
- Understand Services and other network primitives

Networking

- Understand the networking configuration on the cluster nodes
- Understand Pod networking concepts
- Understand Service Networking
- Deploy and configure network load balancer
- Know how to use Ingress rules
- Know how to configure and use the cluster DNS
- Understand CNI

Scheduling

- Use label selectors to schedule Pods
- Understand the role of DaemonSets
- Understand how resource limits can affect Pod scheduling
- Understand how to run multiple schedulers and how to configure Pods to use them
- Manually schedule a pod without a scheduler
- Display scheduler events

Security

- Know how to configure authentication and authorization
- Understand Kubernetes security primitives
- Know how to configure network policies
- Create and manage TLS certificates for cluster components
- Work with images securely
- Define security contexts
- Secure persistent key value store

Cluster Maintenance

- Understand Kubernetes cluster upgrade process
- Facilitate operating system upgrades
- Implement backup and restore methodologies

Logging / Monitoring

- Understand how to monitor all cluster components
- Understand how to monitor applications
- Manage cluster component logs
- Manage application logs

Storage

- Understand persistent volumes and know how to create them
- Understand access modes for volumes
- Understand persistent volume claims primitive
- Understand Kubernetes storage objects
- Know how to configure applications with persistent storage

Troubleshooting

- Troubleshoot application failure
- Troubleshoot control plane failure
- Troubleshoot worker node failure
- Troubleshoot networking

Resources for preparation

- k8s documentation
- Kubernetes the hard way by Kelsey Hightower
- Training by CNCF (https://www.cncf.io/certification/training/)
- Online courses (udemy, linux academy, cloud academy, whizlabs)
- Candidate handbook (https://docs.linuxfoundation.org/tc-docs/certification/lf-candidate-handbook)
- katakoda - interactive browser based scenario.

JSONPATH

Tips

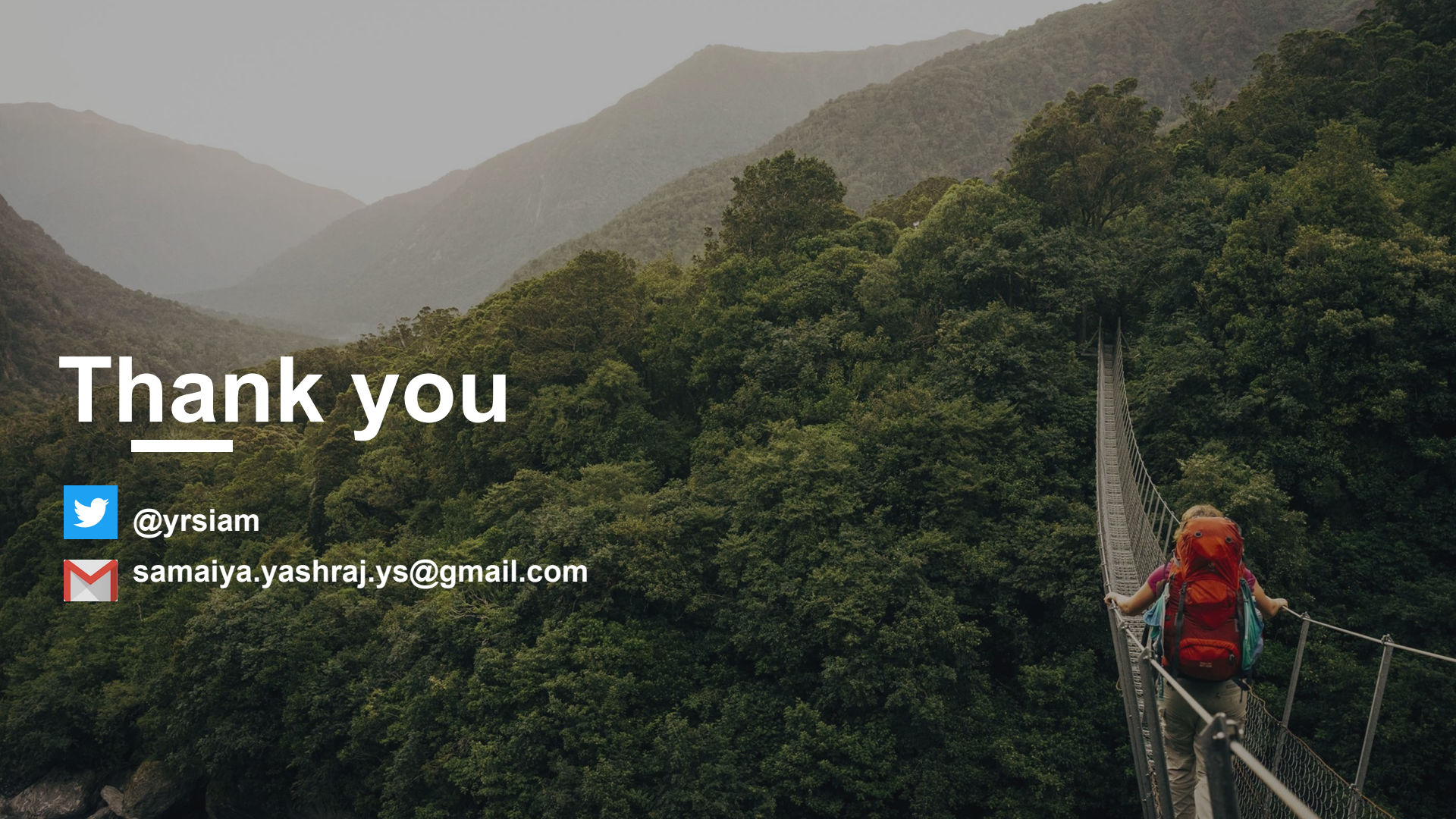
Use Imperative commands

Alise for kubectl

Use bookmarks of k8s documentation

Practice !!!!!!!!!

Be calm calm calm!!!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