



KUBERNETES ON AZURE BOOTCAMP

Two days of intensive training to get you ramped up fast.



Kubernetes is quickly becoming the container orchestration platform of choice for organizations deploying applications into the cloud. Ramp up your development and operations team members with this “hands on”, deeply technical bootcamp.

Containers and Kubernetes

Kubernetes is an open-source platform for automating deployment, scaling, and management of containerized applications. It enables web scale, extensible application runtime in on-premise, hybrid or public cloud infrastructure and is truly enterprise-grade. By leveraging containers and orchestration solutions such as Kubernetes, engineering best practices such as immutable infrastructure are enabled, developer productivity is massively increased, rapid change becomes the norm, and resilience is built in.

Kubernetes has become the standard container orchestration platform for the enterprise. Organizations are striving to understand this new technology within the larger devops ecosystem. We have designed this Kubernetes on Azure Bootcamp as a two-day intensive technical course, onsite in your own office. By end of this bootcamp, your team will have a solid foundational understanding of Kubernetes and how it can enable faster time to market.

How Does It Work?

1. Plan: We will spend an hour discussing your current environment, skillsets, priorities, and learning objectives. We will review the bootcamp course outline, schedule the training dates, and provide you with communications material needed to ensure your team is excited and properly prepared to learn.

2. Attend: One of our Lead Kubernetes Platform Engineers will conduct the hands-on course material in your office with 5-15 attendees. A mixture of development and operations staff is best. Using our Azure reference architecture as an example, your team will learn about core Kubernetes concepts such as deployments, services, statefulsets, daemonsets, autoscaling, the key tools such as kubectl and helm, and monitoring and logging fundamentals, as well as container best-practices, continuous integration for containers, and much more.

3. Q&A: Our instructor will be available for the next month to answer email questions students may have about the course material.

Cost

Kubernetes on Azure Bootcamp is \$1,995 per person with a minimum of 5 participants. It includes all course materials.*

*Travel and accommodations where required is additional.

Day 1 Outline*

- **Kubernetes Architecture**
 - Key components and what role they serve
 - Key K8S resources and their purpose
 - Quick overview of Kubernetes networking
 - K8S as a dynamic platform and what that means
- **Setting up your environment**
- **The Todo list microservices application overview**
 - Deploying the application to K8S
 - Making a change and doing a rolling-update
 - Scaling out the application to deal with increased traffic
- **Pods - the unit of deployment in K8S**
 - Defining the manifest
 - What to consider when decomposing your application into pods
 - Health checks and CPU, Memory requests and limits
- **Services - How do pods find each other?**
 - Exposing your pods as services
 - Using load-balancers and NodePorts to expose your pods to clients outside your cluster
 - Accessing services external to your cluster. e.g. Azure CosmosDB service
- **Deployments - enable you to perform rolling upgrades, rollback, and scale up/scale down your services.**
- **Storage - Volumes, Persistent Volumes, Persistence Volume Claims, Storage Classes.**
- **ConfigMaps - ConfigMaps enable you to define configuration that is accessible as environment variables, files in a volume or command line arguments.**
- **Daemonsets - Running pods that need to run on all or some nodes continuously e.g. for log aggregation.**
- **Jobs - Deploying jobs on K8S.**
- **Introduction to Helm - Package manager for K8S deployments.**
 - What is it and why you need it
 - Deploying the Todo list application using Helm
 - Charts and templates
 - Sharing your charts

* This is a core outline but can be customized based on experience level of the audience.

Day 2 Outline*

- **Statefulsets - Using statefulsets to deploy services that require role differentiation across the cluster.**
For example, mysql database with master and slave.
- **Advanced Scheduling - Controlling how your pods are scheduled to the nodes.**
- **Ingress - Customizing the routing of published services.**
 - *Deploying the nginx ingress controller*
 - *Configuring routing to different versions of your services*
- **RBAC - Role Based Access Control - Controlling access to your K8S cluster.**
 - *K8S authn/authz model*
 - *Integrating Azure AD for authn/authz*
 - *Creating custom roles and role bindings to only allow access to a specific namespace (e.g. qa or dev)*
- **Monitoring and Log Aggregation**
 - *Deploying Azure Log Analytics and OMS*
 - *Deploying EFK (Elasticsearch, Fluentd, Kibana) for log aggregation, Prometheus and Grafana for monitoring*
- **Cluster Administration - Key cluster administration considerations.**
- **Advanced Secrets Management**
 - *Integrating Hashicorp Vault to support "zero-trust" deployments*
- **Extending K8S**
 - *We will create our own K8S resource type and implement a custom controller using the "Operator" pattern*
- **Brief overview of other K8S tools and projects you should know about:**
 - *Draft - Tool to help developers be productive building/testing applications on K8S*
 - *Minikube - Local single node K8S cluster for development and learning*
 - *Conduit - A lightweight microservices service mesh that can be deployed to K8S. Provides intelligent load-balancing, telemetry and more!*
 - *Kubespray - Deploying K8S using ansible. Can be used to deploy on bare metal, on-premises VMs, various cloud providers*

* This is a core outline but can be customized based on experience level of the audience.

Benefits

Your team will experience hands-on, deeply technical training on Kubernetes on Azure. They will learn new skills to automate deployment, scale, and manage containerized applications on Azure.

Why Architech

Architech is a digital product studio and System Integrator. We design and deliver user-centred, cloud-native solutions, up to 87% faster. Using design thinking and agile engineering, we solve complex problems for our clients.

Since 2004, we've been designing and engineering resilient software. We've worked with hundreds of clients to drive digital transformation across diverse industries, and have built a range of highly available systems, processed millions of transactions, and given users a voice.

Architech is a Microsoft Gold Cloud Platform and a Silver Application Development partner.

Ask us how to book Architech's Kubernetes on Azure Bootcamp!
www.architech.ca | kubernetes@architech.ca | 416. 607. 5618