Qlik Sense® Enterprise on Kubernetes: Suggestions for deployment

Overview

Set forth below is general information and suggestions for Qlik Partners interested in exploring the deployment of Qlik Sense Enterprise (QSE) on Kubernetes which is a key part of Qlik's multi-cloud approach. For a comprehensive overview of QSE Architecture, download the QSE Architecture and Scalability whitepaper: QSE Architecture and Scalability whitepaper.

The contents of this document are for informational purposes only and relates to installation and configuration of an initial test environment only. This document is expressly not part of Qlik Documentation, and Qlik makes no warranties or representations, or any obligations to update, with respect to the information contained herein. Partners are solely responsible to determine their own deployment processes with respect to production use of Qlik Sense Enterprise on Kubernetes.

Partners are encouraged to visit the Kubernetes website for information regarding Kubernetes. This document is not an installation guide and it is not intended to provide a full guide on how to deploy QSE on Kubernetes into a production environment with full volumes of data and usage. Keep in mind that to get started, you must make sure that you have the correct license, a modern IdP (Identity Provider) such as Okta, or Auth0, that can provide authentication and pass identity information securely between Cloud Services. For a multi-cloud scenario, the IdP must support both OIDC from ADFS and SAML authentication methods. To learn more about IdPs, go to the IdP section on the Help site.

1. Prerequisites and areas of technical knowledge

A. Qlik Licensing and IdP.
Before you can deploy Qlik Sense on Kubernetes, you must have Qlik Sense version February 2019 or later and a modern IdP (Identity Provider) such as Okta, or Auth0, that can provide authentication and pass identity information securely between Cloud Services. For a multi-cloud scenario, the IdP must support both OIDC from ADFS and SAML authentication methods. To learn more about IdPs, go to the IdP section on the Qlik Help site.

B. Background knowledge.
Before your initial deployment of Qlik Sense on Kubernetes, it is highly recommended that partners have reviewed the following information: Please notice that while most of the links are publicly accessible, some of the links mentioned in the following section (i.e. Qlik Education – QED site) do require the appropriate credentials. The main areas of knowledge are:

    a) **Product knowledge:** before jumping into the product, it is highly recommended to go through the Qlik multi-cloud messaging so there is clarity in terms of how QSE on Kubernetes fits in your ecosystem. From the Qlik Education site, you can visit the Multi-

cloud messaging module (please notice that first you will have to log into the QED site and then click again on the link to take you to the right module) and from the Partner Portal you can visit the Multi-Cloud page under Qlik Sense as well as the Partner Green Line for the latest on this topic. Overall understanding of Qlik Sense Enterprise is needed as well. Other sources of good product info include recorded Fast Track Enablement webinars available at On24 (Partners only/Qlik ID needed to log in):

     i. Overview of multi-cloud deployment for Qlik Sense Enterprise
     ii. Qlik Sense Multi-Cloud Architecture
     iii. Multi-Cloud Technologies Overview
     iv. Multi-Cloud capabilities for Qlik Sense Enterprise

b) **Kubernetes basics:** the sub-main areas of knowledge needed are on the installation and configuration of a Kubernetes cluster as well as the basic tuning and troubleshooting needed. A basic Kubernetes course would give a good foundation to get started with QSE on Kubernetes. Complete an online course on Kubernetes basics. For a sample local installation of a Kubernetes cluster, Minikube could be used. **Appendix A** at the end of this document provides more information on this topic. It is highly recommendable to visit Kubernetes installation and configuration instructions.

c) **Cloud platform basics:** Make sure to have enough knowledge on the cloud platform of your choice. For example, if you are planning to use AWS, it is highly recommendable to go through some of the Solution Architect classes available. There are similar classes for Azure on administration and architecture and for Google Cloud Platform. Cloud providers keep improving their capabilities very fast so making sure that you familiar with the latest is always recommended (i.e. Amazon Elastic Container Service for Kubernetes)

2. Recommended areas of technical knowledge

This section contains the list of technical topics that will be helpful in QSE on Kubernetes.

a) **Microservices basics:** having a good foundation on microservices will be extremely helpful in your QSE on Kubernetes journey. There are a lot of good references out there such as: "What Microservices are" and "What are Microservices?"

b) **Linux basics:** there are three main sub-areas of knowledge that you will need to get started which are Linux commands/Linux Command Line (CLI), basic administration and security. These are areas of knowledge required. If needed, complete online courses on these topics (i.e. https://www.udemy.com/linux-command-line-volume1/, https://www.udemy.com/linux-administration-bootcamp/ and https://www.udemy.com/linux-security/). All these three topics on Linux will be essential for your success. If you do have access to Qlik Education (QED) site, go to the following module for a quick assessment on your Linux knowledge . This module will help you assess your competence level of Linux.

c) **Docker basics:** Similarly, the sub-areas of knowledge that are required are around installation and configuration of Docker for the container orchestration. Make sure to visit the following for installation and documentation: installation and documentation . Additionally, it is highly recommended to take a class on Docker fundamentals , Docker

intermediate and swar intermediate. Note that it is needed to install and run Docker in the Linux environment where you will be running QSE on Kubernetes. Other free sources to get Docker knowledge include "What is docker?"

3. Getting Started

The main location for the Qlik knowledge that is needed is Qlik's Help site. The starting point is located here. As you prepare for the installation, the following section contains the list of tools and steps that need to be completed for the elastic deployment.

In addition to Qlik's Help site, there are a series of videos available on Qlik's YouTube channel that walk you through the configuration of QSE on Kubernetes using Okta as the IdP: QSE on Kubernetes using Okta as the IdP

Once you are ready, you can proceed with the actual installation. The following section in Qlik's Help site describes the process in detail.

Once the product has been installed then you are ready to configure the distribution of applications to the Kubernetes environment as well as the configuration of certificates in the environment. Once your environment is fully configured and up and running, then you can use a system monitoring and alerting system monitoring and alerting tool such Prometheus to get some insight into the metrics that QSE on Kubernetes exposes.

There are other good sources of information to learn more about such as Qlik Community:

a) Going from one node to a multi-node set up of QSE on Kubernetes

b) What QSE on Kubernetes is and is not

.

4. Next Steps

There are other sources of information that are worth going through as you continue your learning path. For example, the following post in Qlik Community is a guide and example on how to configure QSE on Kubernetes in Azure:

https://community.qlik.com/t5/Qlik-Sense-Enterprise-Documents/QSEFE-Setup-Guide/ta-p/1554516

It is strongly recommended that you continue to visit the following sites for further information on QSE, QSE on Kubernetes, Multi-cloud and related topics:

a) Qlik's Help site (https://help.qlik.com/)
b) Qlik Community (https://community.qlik.com/)
c) Qlik Partner Portal (partners only) including the Partner Green Line
d) Qlik's site (http://www.qlik.com)
e) Qlik's YouTube channel (https://www.youtube.com/channel/UCqDEwoclB5Btepxr6O9EkAQ)

5. Frequent Questions

Some of the most common challenges along the way include the following:

a) Configuration of IdP and creation of an account. For example, Auth0 has an additional header response box that should be taken in consideration when setting the right headers (Access-Control-Allow-*). The Access-Control-Allow-Origin require to put the FQDN host/domain which need to be resolved by the DNS.
b) Make sure to follow all installation instructions carefully and in order
c) Exact installation and configuration steps will vary depending the hosting option selected (i.e. Azure, AWS, GCP, On premise/private, etc.)

6. Troubleshooting

This section is intended to grow over time to list different ideas that can help troubleshoot specific potential issues:

1. Viewing QSE on Kubernetes log files <u>QSE on Kubernetes log files</u> to get more details on the issue(s) in question

Appendix A – Minikube installation and setup

The following are the basic steps to set up minikube and supporting tools, further information can be found online at https://kubernetes.io

Installation of Minikube (Windows only)

Windows
1. Create a folder eg C:\Kubernetes
2. Add this folder to the windows PATH (run set PATH=%PATH%;C:\Kubernetes at the command line)
3. Download the latest Minikube for Windows from minikube-windows file, rename it to minikube.exe and place it in your folder
4. Download the latest kubectl from https://kubernetes.io/docs/tasks/tools/install-kubectl/

Start Minikube
5. To start minikube and give it more RAM than default, run:
   minikube start --memory 4096 --cpus=2

Install Helm
6. If you haven't install helm, yet, please download latest Helm from GitHub (https://github.com/helm/helm/blob/master/docs/install.md)
7. Unzip the file and place helm.exe in your Kubernetes path folder (e.g. C:\Kubernetes)

Initialize Helm
8. If you haven't already, run the following command to initialize helm in the cluster
helm init --upgrade --wait

Get Cluster Info
9. Run kubectl cluster-info if everything is up you should get the address your cluster is running on locally (you will need this later).

Add Qlik's helm chart repo
10. Next run the following command to add Qlik's helm chart repo to helm:
    helm repo add qlik https://qlik.bintray.com/stable
(Note: You can list all existing repos with helm repo list).

You should now be ready to deploy QSE on Kubernetes. To install Minikube in Linux follow the following instructions:

1. Download the latest kubectl from https://kubernetes.io/docs/tasks/tools/install-kubectl/
2. Follow the following instructions https://github.com/kubernetes/minikube/releases