WEKA

Process Guide

CoreOS Worker Preparation

Setting up Red Hat OpenShift Platform with CoreOS for Weka client access

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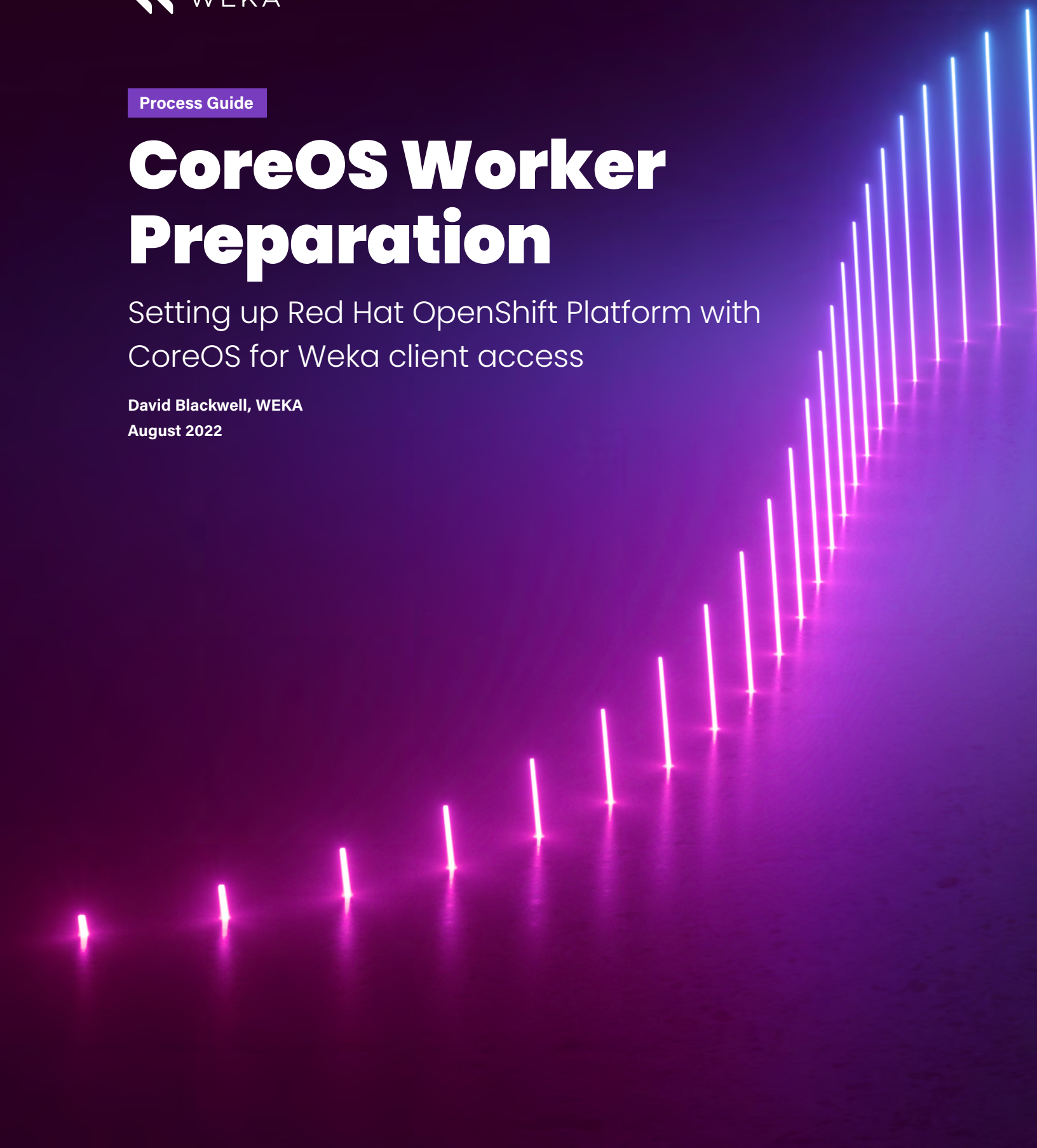

Abstract

This guide is intended to provide an overview of setting up WEKA for CoreOS and highlight some usage examples

Contents

Overview

This process builds and sets up the kernel driver and client application for WEKA POSIX storage access via CSI driver in OpenShift Platform

Process Outline

The following is the basic process for setting up the WEKA components:

Online

- Run the install.sh script with the appropriate host network device(s), core count, WEKA cluster management IP, and WEKA client version.
- Run install.sh with the WEKA cluster management IP, admin user, admin password to create a Kubernetes secret for the CSI to use

Offline

- Run the install.sh script with the appropriate WEKA client version and OCP version.
- Run the install.sh script with the package created in the first step, host network device(s), WEKA cluster management IP, private OCP registry.
- Run install.sh with the WEKA cluster management IP, admin user, admin password to create a Kubernetes secret for the CSI to use

Features

The Features available are listed below.

- Online setup
- Offline setup
- Secret creation for CSI

Installation

System Requirements

- Ubuntu 18.04 or higher recommended
- `moreutils` package
- `jq` package
- `helm`
- `oc` admin binary
- `docker` for building offline package
- at least 15 GBs of free space for offline package build
- Red Hat OpenShift version 4.9 or higher (tested on version 4.10)
- OCP Worker nodes must have minimum of 8 cores (16 with hyperthreading)
- Suggested minimum RAM for worker nodes 128 GBs
- Two physical nics minimum for Worker nodes. One for OCP, one for WEKA. Additional network interfaces for WEKA will increase throughput and data performance.
- Must be on same Layer 2 network as WEKA cluster backend.

Installation Procedure

1. Install required packages
2. Unzip setup package to working client
3. Cd into directory
4. Fill out pull secret information in '/weka-oc-pull-secret/config.json'
5. Run commands

Usage

Install required packages

- sudo apt update
- sudo apt install moreutils jq
- HELM
  - curl https://baltocdn.com/helm/signing.asc | gpg --dearmor | sudo tee /usr/share/keyrings/helm.gpg > /dev/null
  - sudo apt-get install apt-transport-https --yes
  - echo “deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/helm.gpg] https://baltocdn.com/helm/stable/debian/ all main” | sudo tee /etc/apt/sources.list.d/helm-stable-debian.list
  - sudo apt-get update
  - sudo apt-get install helm
- Docker (if doing offline installation)
  - sudo apt-get update
  - sudo apt-get install ca-certificates curl gnupg lsb-release
  - sudo mkdir -p /etc/apt/keyrings
  - curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
  - echo “deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable” | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
  - sudo apt-get update
  - sudo apt-get install docker-ce docker-ce-cli containerd.io docker-compose-plugin
- OC binary
  - Download client from https://mirror.openshift.com/pub/openshift-v4/x86_64/clients/ocp/stable/openshift-client-linux.tar.gz
  - Untar files and copy oc to local bin.
    - tar xvzf openshift-client-linux.tar.gz && sudo cp oc /usr/local/bin
- WEKA setup files
  - Unzip files from archive
    - unzip weka-kvc-main.zip
  - Change to working directory
    - cd weka-kvc-main

Add OCP pull secret

- Download pull secret from site https://console.redhat.com/openshift/install/pull-secret
- Copy pull-secret.txt to replace config.json
  - cp pull-secret.txt weka-pull-secret/config.json
    - Note: after download pull-secret.txt may be in a different directory. Be sure to copy it from the path its downloaded to.

Online install (requires active internet connection)

- ./install.sh --version <WEKA_SOFTWARE_VERSION> --backend-ip-address <BACKEND_IP_ADDRESS> --backend-net <NIC[,NIC...]> [--core-count <IONODE_COUNT>]
  - Note: Currently the proper version is "4.0.1-b660c1fe7aced98be30f5c813728fdca"
  - ./install.sh --version 4.0.1-b660c1fe7aced98be30f5c813728fdca --backend-ip-address 10.0.159.76 --backend-net ens6,ens7 --core-count 2

Create offline image (requires active internet connection)

- ./install.sh --prepare-offline-package --version <WEKA_SOFTWARE_VERSION> --offline-ocp-version <OCP_VERSION>
  - Note: Currently the proper version is "4.0.1-b660c1fe7aced98be30f5c813728fdca"
  - ./install.sh --version 4.0.1-b660c1fe7aced98be30f5c813728fdca --prepare-offline-package --offline-ocp-version 4.10.21

Install from offline image

- ./install.sh --from-offline-package <PACKAGE_FILE> --image-registry-url <REGISTRY_URL> --backend-ip-address <BACKEND_IP_ADDRESS> --backend-net <NIC[,NIC...]> [--core-count <IONODE_COUNT>]
  - ./install.sh --backend-ip-address 10.0.159.76 --backend-net ens256 --from-offline-package offline-package-4.0.1-b660c1fe7aced98be30f5c813728fdca-ocp4.10.21.tar --image-registry-url default-route-openshift-image-registry.apps.ocp410.coreos.lan --core-count 1

Create Kubernetes secret for CSI

- ./install.sh --create-csi-secret --endpoint-ip-address <BACKEND_IP_ADDRESS> --system-username <USERNAME> --system-password <PASSWORD> [--system-organization <ORGANIZATION>]
  - ./install.sh --create-csi-secret --system-username admin --system-password admin --endpoint-ip-address 10.0.159.76 --system-organization Root

Create Storage Class for WEKA csi

- *example config file

```
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  name: storageclass-wekafs-dir-api
provisioner: csi.weka.io
reclaimPolicy: Delete
volumeBindingMode: Immediate
allowVolumeExpansion: true
parameters:
  volumeType: dir/v1
  filesystemName: default #MUST MATCH WEKA FILESYSTEM THAT PVCS WILL BE CREATED IN
  capacityEnforcement: HARD
  csi.storage.k8s.io/provisioner-secret-name: &secretName csi-wekafs-api-secret
  csi.storage.k8s.io/provisioner-secret-namespace: &secretNamespace csi-wekafs
  csi.storage.k8s.io/controller-publish-secret-name: *secretName
  csi.storage.k8s.io/controller-publish-secret-namespace: *secretNamespace
  csi.storage.k8s.io/controller-expand-secret-name: *secretName
  csi.storage.k8s.io/controller-expand-secret-namespace: *secretNamespace
  csi.storage.k8s.io/node-stage-secret-name: *secretName
  csi.storage.k8s.io/node-stage-secret-namespace: *secretNamespace
  csi.storage.k8s.io/node-publish-secret-name: *secretName
  csi.storage.k8s.io/node-publish-secret-namespace: *secretNamespace
```

Appendix

.install.sh help file

Install WEKA client software on OpenShift cluster

Usage: ./install.sh --version <WEKA_SOFTWARE_VERSION> --backend-ip-address <BACKEND_IP_ADDRESS> --backend-net <NIC[,NIC...]> [--core-count <IONODE_COUNT>]

or ./install.sh --from-offline-package <PACKAGE_FILE> --image-registry-url <REGISTRY_URL> --backend-ip-address <BACKEND_IP_ADDRESS> --backend-net <NIC[,NIC...]> [--core-count <IONODE_COUNT>]

or: ./install.sh --prepare-offline-package --version <WEKA_SOFTWARE_VERSION> --offline-ocp-version <OCP_VERSION>

or: ./install.sh --create-csi-secret --endpoint-ip-address <BACKEND_IP_ADDRESS> --system-username <USERNAME> --system-password <PASSWORD> [--system-organization <ORGANIZATION>]

Notes:

- You must be already logged in to OpenShift cluster
- Current context must be set to desired OpenShift cluster context
- unless specified otherwise, all objects will be installed in namespace “weka”

Online Install Arguments

--version STRING	WEKA client software version
--backend-ip-address STRING	one of the WEKA cluster backend Management IP addresses (on DATA network)
--backend-net STRING	comma-separated list of network adapters to use (e.g. ens256), must be equal to number of ionodes
--core-count NUMBER	number of IO nodes, default 1, must be equal to number of network adapters

Offline Install Arguments

--image-registry-url STRING	The URL on which OpenShift Container Platform internal registry is exposed
--backend-ip-address STRING	one of the WEKA cluster backend Management IP addresses (on DATA network)
--backend-net STRING	comma-separated list of network adapters to use (e.g. ens256), must be equal to number of ionodes
--core-count NUMBER	number of IO nodes, default 1, must be equal to number of network adapters

Prepare Offline Install Package Arguments

--version STRING	WEKA client software version
--offline-ocp-version STRING	Version of OpenShift Container Platform package is intended for

Create CSI Secret Arguments

--endpoint-ip-address STRING	one or more WEKA cluster Management IP addresses, comma separated
--system-username STRING	username for API connectivity to WEKA cluster
--system-password STRING	password for API connectivity to WEKA cluster
--system-organization STRING	organization the user belongs to on WEKA cluster, default 'Root'

Optional arguments for installation (online or offline):

--namespace STRING	namespace to install the product in, default weka
--csi-plugin-namespace STRING	namespace where CSI plugin is (going to) be installed, default csi-wekafs

Known Limitations/Bugs

On rare occasion the driver build could be on a node that gets rescheduled while the driver is compiling. This can be fixed simply by running the install command again.

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