Deploy Nginx and Phpfpm on Kubernetes

The Nautilus Application Development team is planning to deploy one of the php-based application on Kubernetes cluster. As per discussion with DevOps team they have decided to use nginx and phpfpm. Additionally, they shared some custom configuration requirements. Below you can find more details. Please complete the task as per requirements mentioned below:

1) Create a service to expose this app, the service type must be NodePort, nodePort should be 30012.

2.) Create a config map nginx-config for nginx.conf as we want to add some custom settings for nginx.conf.

a) Change default port 80 to 8099 in nginx.conf.

b) Change default document root /usr/share/nginx to /var/www/html in nginx.conf.

c) Update directory index to index index.html index.htm index.php in nginx.conf.

3.) Create a pod named nginx-phpfpm .

b) Create a shared volume shared-files that will be used by both containers (nginx and phpfpm) also it should be a emptyDir volume.

c) Map the ConfigMap we declared above as a volume for nginx container. Name the volume as nginx-config-volume, mount path should be /etc/nginx/nginx.conf and subPath should be nginx.conf

d) Nginx container should be named as nginx-container and it should use nginx:latest image. PhpFPM container should be named as php-fpm-container and it should use php:7.3-fpm image.

e) The shared volume shared-files should be mounted at /var/www/html location in both containers. Copy /opt/index.php from jump host to the nginx document root inside nginx container, once done you can access the app using App button on the top bar.

Before clicking on finish button always make sure to check if all pods are in running state.

You can use any labels as per your choice.

Note: The kubectl utility on jump\_host has been configured to work with the kubernetes cluster.

SOLUTION

Vi nginx.yaml

apiVersion: v1

kind: Service

metadata:

name: nginx-service

spec:

type: NodePort

selector:

app: nginx-app

type: front-end

ports:

- port: 80

targetPort: 80

nodePort: 30012

---

apiVersion: v1

kind: ConfigMap

metadata:

name: nginx-config

data:

nginx.conf: |

events {}

http {

server {

listen 8099;

index index.html index.htm index.php;

root /var/www/html;

location ~ \.php$ {

include fastcgi\_params;

fastcgi\_param REQUEST\_METHOD $request\_method;

fastcgi\_param SCRIPT\_FILENAME $document\_root$fastcgi\_script\_name;

fastcgi\_pass 127.0.0.1:9000;

}

}

}

---

apiVersion: v1

kind: Pod

metadata:

name: nginx-phpfpm

spec:

volumes:

- name: shared-files

emptyDir: {}

- name: nginx-config-volume

configMap:

name: nginx-config

containers:

- name: nginx-container

image: nginx:latest

volumeMounts:

- name: shared-files

mountPath: /var/www/html

- name: nginx-config-volume

mountPath: /etc/nginx/nginx.conf

subPath: nginx.conf

- name: php-fpm-container

image: php:7.3-fpm

volumeMounts:

- name: shared-files

mountPath: /var/www/html

apiVersion: v1

kind: Service

metadata:

name: nginx-service

spec:

type: NodePort

selector:

app: nginx-app

type: front-end

ports:

- port: 8092

targetPort: 8092

nodePort: 30012

---

apiVersion: v1

kind: ConfigMap

metadata:

name: nginx-config

data:

nginx.conf: |

events {}

http {

server {

listen 8092;

index index.html index.htm index.php;

root /var/www/html;

location ~ \.php$ {

include fastcgi\_params;

fastcgi\_param REQUEST\_METHOD $request\_method;

fastcgi\_param SCRIPT\_FILENAME $document\_root$fastcgi\_script\_name;

fastcgi\_pass 127.0.0.1:9000;

}

}

}

---

apiVersion: v1

kind: Pod

metadata:

name: nginx-phpfpm

labels:

type: app

spec:

volumes:

- name: shared-files

emptyDir: {}

- name: nginx-config-volume

configMap:

name: nginx-config

containers:

- name: nginx-container

image: nginx:latest

volumeMounts:

- name: shared-files

mountPath: /var/www/html

- name: nginx-config-volume

mountPath: /etc/nginx/nginx.conf

subPath: nginx.conf

- name: php-fpm-container

image: php:7.2-fpm

volumeMounts:

- name: shared-files

mountPath: /var/www/html

apiVersion: v1

kind: Service

metadata:

labels:

app: nginx-phpfpm

name: nginx-service

spec:

type: NodePort

selector:

app: nginx-app

type: front-end

ports:

- nodePort: 30012

targetPort: 8096

port: 8096

---

apiVersion: v1

kind: ConfigMap

metadata:

name: nginx-config

data:

nginx.conf: |

events {}

http {

server {

listen 8096;

index index.html index.htm index.php;

root /var/www/html;

location ~ \.php$ {

include fastcgi\_params;

fastcgi\_param REQUEST\_METHOD $request\_method;

fastcgi\_param SCRIPT\_FILENAME $document\_root$fastcgi\_script\_name;

fastcgi\_pass 127.0.0.1:9000;

}

}

}

---

apiVersion: v1

kind: Pod

metadata:

name: nginx-phpfpm

spec:

volumes:

- name: shared-files

emptyDir: {}

- name: nginx-config-volume

configMap:

name: nginx-config

containers:

- name: nginx-container

image: nginx:latest

volumeMounts:

- name: shared-files

mountPath: /var/www/html

- name: nginx-config-volume

mountPath: /etc/nginx/nginx.conf

subPath: nginx.conf

- name: php-fpm-container

image: php:7.3-fpm

volumeMounts:

- name: shared-files

mountPath: /var/www/html