Final-Project-Assessment-for-Scalefocus-Academy

The finals are upon us

Prerequisites

Requierment	info	Installed
Kubernetes	k3s local kluster	✅
HELM	wsl2	✅
Jenkins	wsl2	✅

Bitnami Wordpres Helm chart - since this is a huge repository and we don't need everything we can use sparse checkout

Getting the chart

```
git clone --depth=1 https://github.com/bitnami/charts.git
cd charts
git config core.sparseCheckout true
touch .git/info/sparse-checkout
echo "bitnami/wordpress" >> .git/info/sparse-checkout
git checkout main
```

And we get get only what we need

```
├── charts
│   └── bitnami
│       └── wordpress
│           ├── Chart.lock
│           ├── Chart.yaml
│           ├── README.md
│           ├── templates
│           │   ├── config-secret.yaml
│           │   ├── deployment.yaml
│           │   ├── externaldb-secrets.yaml
│           │   ├── extra-list.yaml
│           │   ├── _helpers.tpl
│           │   ├── hpa.yaml
│           │   ├── httpd-configmap.yaml
│           │   ├── ingress.yaml
│           │   ├── metrics-svc.yaml
│           │   ├── networkpolicy-backend-ingress.yaml
│           │   ├── networkpolicy-egress.yaml
│           │   ├── networkpolicy-ingress.yaml
│           │   ├── NOTES.txt
│           │   ├── pdb.yaml
│           │   ├── postinit-configmap.yaml
│           │   ├── pvc.yaml
│           │   ├── secrets.yaml
│           │   ├── serviceaccount.yaml
│           │   ├── servicemonitor.yaml
│           │   ├── svc.yaml
│           │   └── tls-secrets.yaml
│           ├── values.schema.json
│           └── values.yaml
└── README.md
```

Yaml changes

From chart.yaml we can see we are pulling images for WordPress, MariaDB, Memecache and Bitnami Common(common templates).
Also i'm taining one of the nodes due to different architecture which might cause Issues during deployments

Update: The master node has worn out the sd-card and has failed, I'm moving the k3s to an x86_64 machine

Changing values.yaml from `type: LoadBalancer -> type: ClusterIP`
Restricting deployment access
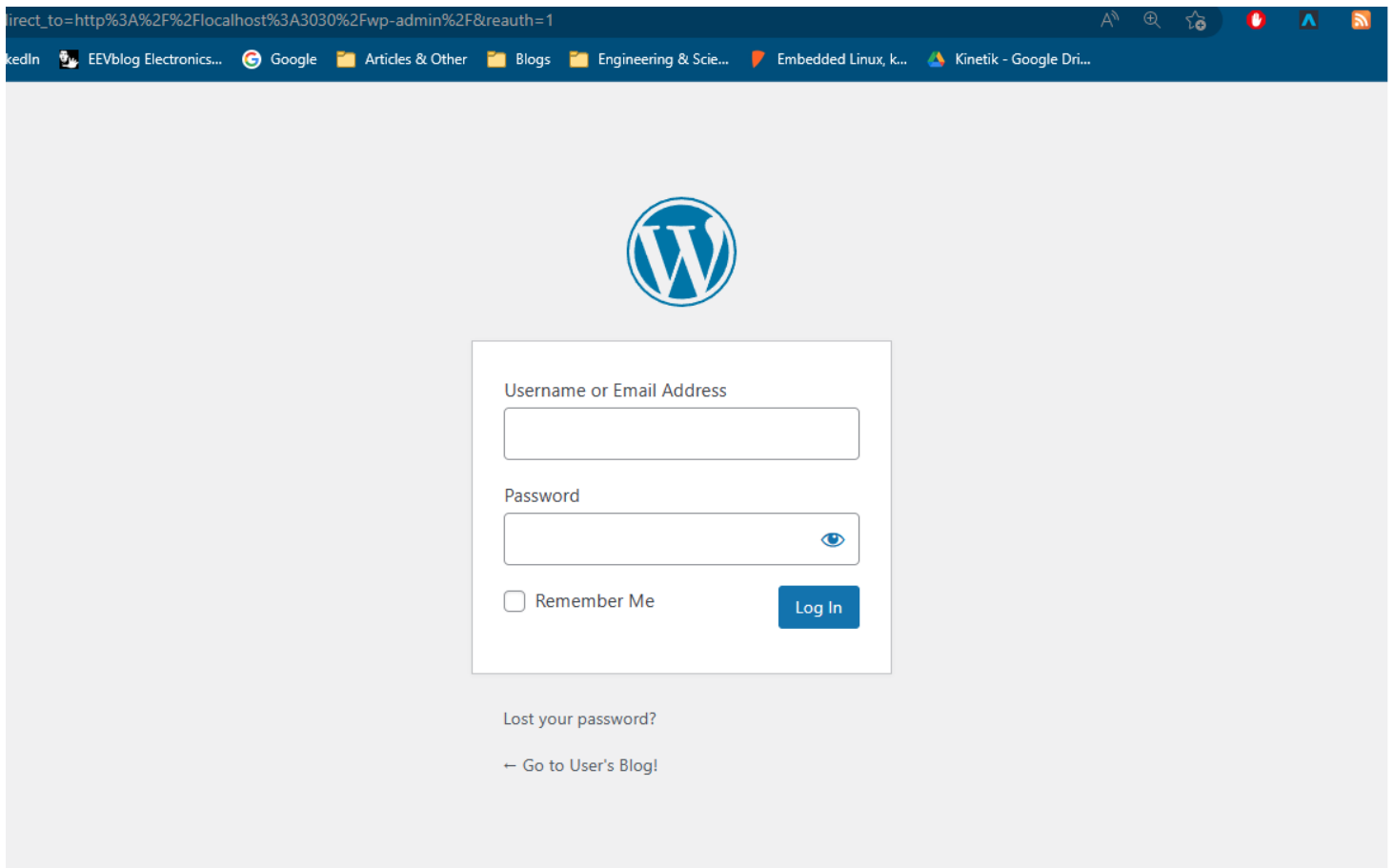
Test run

And we install the helm chart

```
helm install wp charts/bitnami/wordpress
NAME: wp
LAST DEPLOYED: Mon May 15 14:18:38 2023
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
CHART NAME: wordpress
CHART VERSION: 16.1.2
APP VERSION: 6.2.0
```

Forward the pod adress

```
k port-forward --namespace default svc/wp-wordpress 3030:80
```

Admin page works

Username or Email Address

Password

◯ Remember Me

Log In

Lost your password?

← Go to User's Blog!

Some light blogging

User's Blog!   Edit site   0   + New   Howdy, user

User's Blog!   Sample Page

Mindblown: a blog about philosophy.

Hello SFA

Life is about the journey and not the destination

May 15, 2023

Got any book recommendations?

Get In Touch
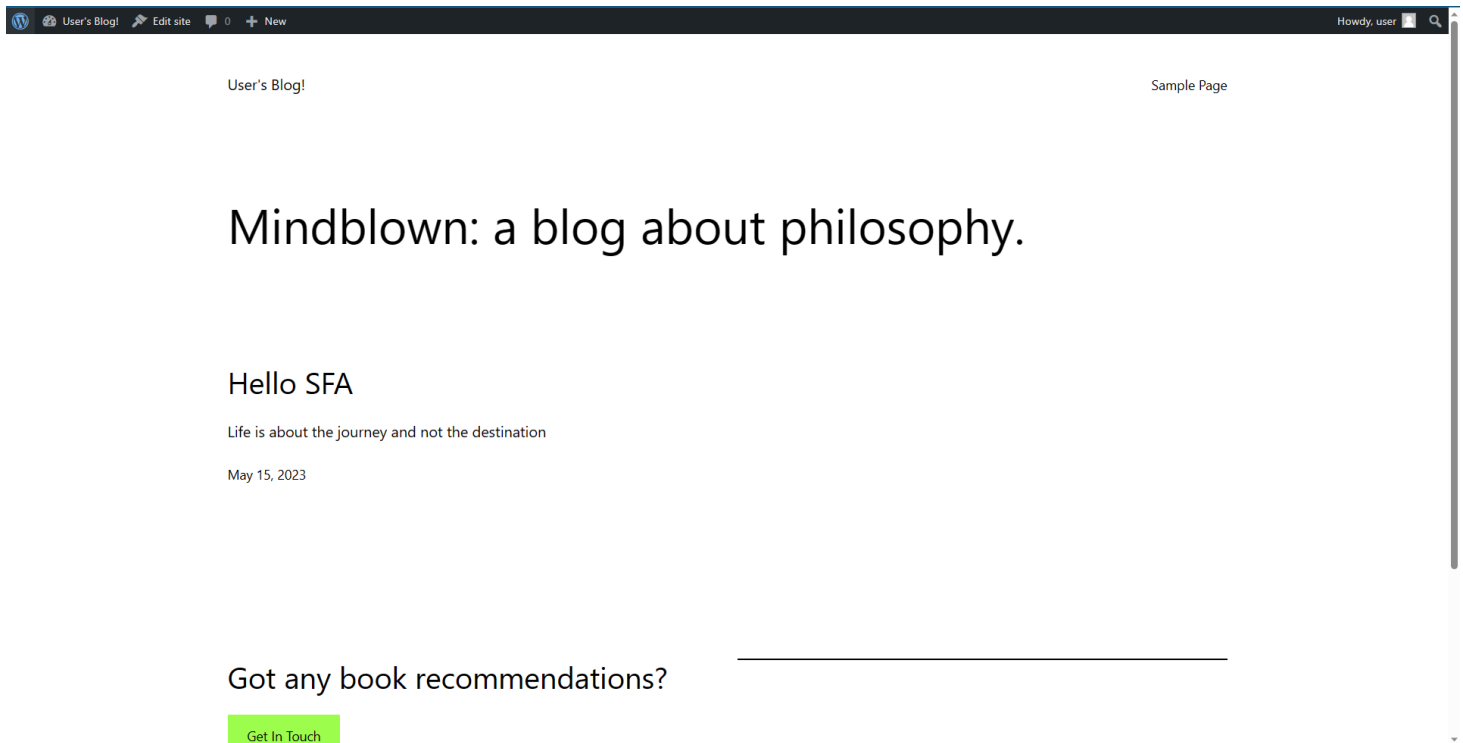
Server and databasae info

Server	
The options shown below relate to your server setup. If changes are required, you may need your web host's assistance.	
Server architecture	Linux 5.15.90.1-microsoft-standard-WSL2 x86_64
Web server	Apache
PHP version	8.1.19 (Supports 64bit values)
PHP SAPI	apache2handler
PHP max input variables	1000
PHP time limit	30
PHP memory limit	512M
Max input time	60
Upload max filesize	80M
PHP post max size	80M
cURL version	7.74.0 OpenSSL/1.1.1n
Is SUHOSIN installed?	No
Is the Imagick library available?	Yes
Are pretty permalinks supported?	Yes

Database	
Extension	mysqli
Server version	10.11.3-MariaDB
Client version	mysqlnd 8.1.19
Database username	bn_wordpress
Database host	wp-mariadb:3306
Database name	bitnami_wordpress
Table prefix	wp_
Database charset	utf8mb4
Database collation	utf8mb4_unicode_520_ci
Max allowed packet size	16777216
Max connections number	151

Storage is persistent

Pipelining with Jenkins

Setting up Kubernetes CLI

Name ↓	Enabled
Kubernetes CLI Plugin 1.12.0 **Configure kubectl for Kubernetes** Report an issue with this plugin	

Setting up credentials for the cluster

	Kyube	config (kyube)	Secret file	kyube	

The pipeline is run locally, no github or webhooks

Frist stage - checking for an existing namespace

```
withKubeConfig([credentialsId: 'Kyube', serverUrl: "${klusterIP}", restrictKubeConfigAccess : t
                def isCreated = sh(script: "kubectl get namespaces | grep -q '${namespac
                echo "${isCreated}"
                if (!isCreated) {
                    sh "kubectl create namespace '${namespace}'"
                } else {
                    echo "Namespace already exists"
                }
    }
```

Next stage - checking for an wordpress installation in the given namespace and installs it if missing

```
def isCreated = sh(
                    script: "kubectl get pods -n wp | grep -q '${podName}' && echo true
                    returnStdout: true).trim() == 'true'

            echo "${isCreated}"
            if (isCreated == false) {
                sh "helm install ${releaseName} ${chartPath} --namespace ${namespace
            } else {
                echo "WordPress deployment already exists"
            }
    }
```

Next stage - waiting for a deployment to finish if wordpress not present

```
when {
            expression {
                script {
                    withKubeConfig([credentialsId: 'Kyube', serverUrl: "${klusterIP}"]) {
                        def deploymentName = sh(
                            returnStdout: true,
                            script: "kubectl rollout status '${rolloutName}' -n wp | grep -d
                        ) == 'true'
                        return deploymentName
                    }
                }
            }
    }
```

Final step - forwarding the port of the pod where wordpress is located

```
steps {
                withKubeConfig([credentialsId: 'Kyube', serverUrl: 'https://127.0.0.1:6443']) {
                    sh 'kubectl port-forward --namespace wp svc/final-project-wp-scalefocus-word
                }
```

Visual representation of the pipeline

Check for existing namespace	Check for existing deployment	Deployment completed	Port forwarding	
709ms	1s	63ms	42s	**e stage times:**
568ms	618ms		7s	**Existing namespace and deployment**
853ms	1s		1min 51s aborted	**Non existing namespace and deployment**

Port forwarding will stay active until it's cancled or it times out(10 minutes)

Final result

localhost:6060

Twitter   A. Home · AniList   MAL My MAL   in Welcome! | LinkedIn   EEVblog Electronics...   G Google   Articles & Other   Blogs   Engineering & Scie...   Embedded Linux, k...   Kinetik - Google Dri...

Mindblown: a blog about philosophy.

Hello world!

Welcome to WordPress. This is your first post.
Edit or delete it, then start writing!

May 16, 2023

Got any book recommendations?

Get In Touch