

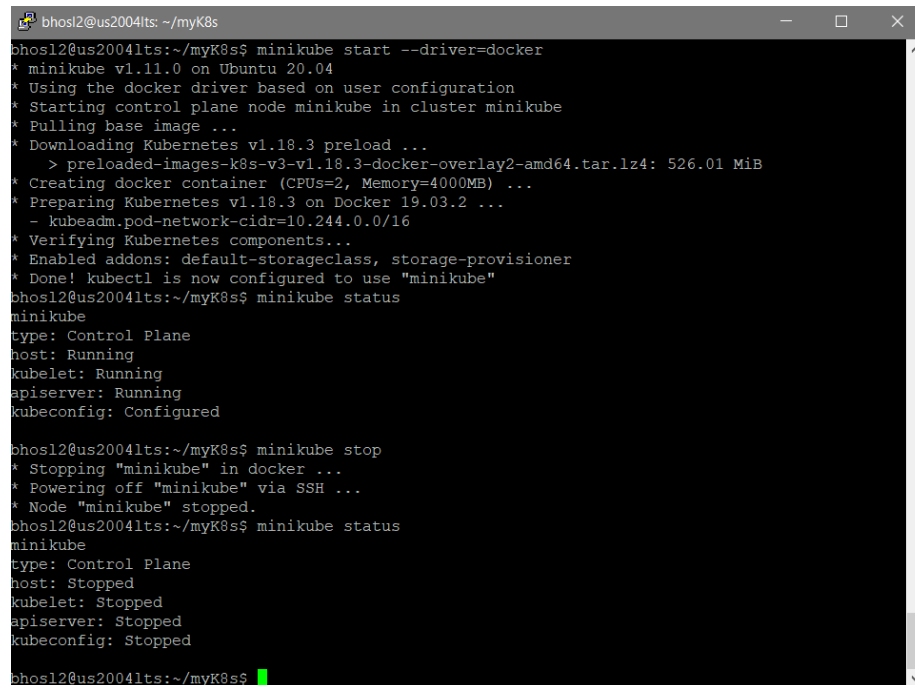
Containerization and Big Data: Exercise 4-1

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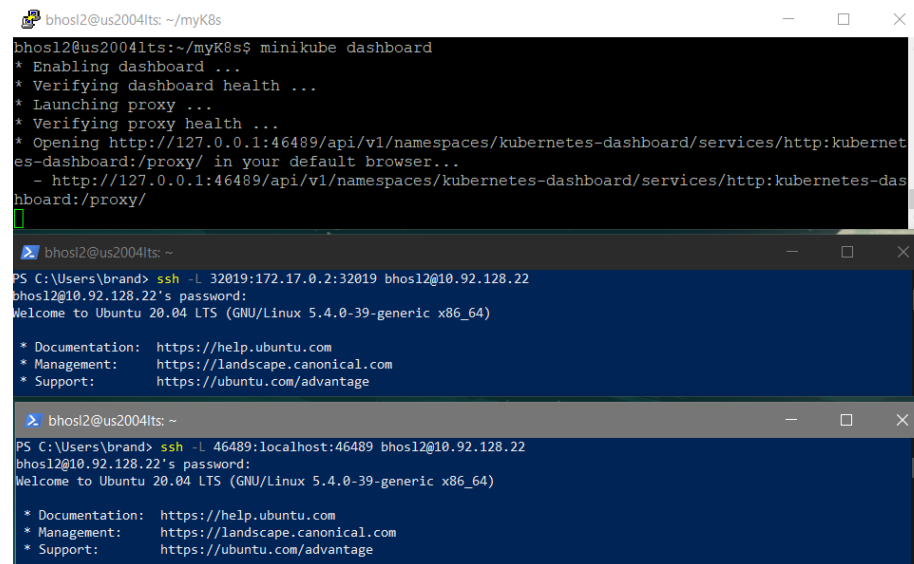
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4 Building a Kubernetes Cluster

4.1 Installing Minikube

A terminal window with a dark background and light text. The window title is 'bhosi2@us2004lts: ~/myK8s'. The user has entered the command 'minikube start --driver=docker'. The output shows various status messages: 'minikube v1.11.0 on Ubuntu 20.04', 'Using the docker driver based on user configuration', 'Starting control plane node minikube in cluster minikube', 'Pulling base image ...', 'Downloading Kubernetes v1.18.3 preload ...', 'preloaded-images-k8s-v3-v1.18.3-docker-overlay2-amd64.tar.1z4: 526.01 MiB', 'Creating docker container (CPUs=2, Memory=4000MB) ...', 'Preparing Kubernetes v1.18.3 on Docker 19.03.2 ...', 'kubeadm.pod-network-cidr=10.244.0.0/16', 'Verifying Kubernetes components...', 'Enabled addons: default-storageclass, storage-provisioner', and 'Done! kubectl is now configured to use "minikube"'. Then the user enters 'minikube status', and the output shows: 'minikube', 'type: Control Plane', 'host: Running', 'kubelet: Running', 'apiserver: Running', and 'kubeconfig: Configured'. Next, the user enters 'minikube stop', and the output shows: 'Stopping "minikube" in docker ...', 'Powering off "minikube" via SSH ...', and 'Node "minikube" stopped.'. Finally, the user enters 'minikube status' again, and the output shows: 'minikube', 'type: Control Plane', 'host: Stopped', 'kubelet: Stopped', 'apiserver: Stopped', and 'kubeconfig: Stopped'. The prompt 'bhosi2@us2004lts: ~/myK8s\$' is visible at the bottom.

4.2 Installing Kubernetes with Minikube



```
bhosl2@us2004lts: ~/myK8s
bhosl2@us2004lts:~/myK8s$ minikube dashboard
* Enabling dashboard ...
* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...
* Opening http://127.0.0.1:46489/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
  - http://127.0.0.1:46489/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/

PS C:\Users\brand> ssh -L 32019:172.17.0.2:32019 bhosl2@10.92.128.22
bhosl2@10.92.128.22's password:
Welcome to Ubuntu 20.04 LTS (GNU/Linux 5.4.0-39-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

PS C:\Users\brand> ssh -L 46489:localhost:46489 bhosl2@10.92.128.22
bhosl2@10.92.128.22's password:
Welcome to Ubuntu 20.04 LTS (GNU/Linux 5.4.0-39-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage
```

4.3 Kubernetes Dashboard

The image shows a screenshot of the Kubernetes Dashboard in a web browser and a terminal window below it.

Kubernetes Dashboard Overview:

- Cluster:** Cluster Roles, Namespaces, Nodes, Persistent Volumes, Storage Classes.
- Namespace:** default (selected).
- Overview:** (selected tab).
- Workloads:** Cron Jobs.

Deployments Table:

Name	Namespace	Labels	Pods	Create
myminikube	default	app: myminikube	1 / 1	1.9 min ago

Pods Table:

Name	Namespace	Labels	Node	Status	Restart	CPU Usage (cores)
myminikube-65bbb4cc68-qmmvn	default	app: myminikube	minikube	Running	0	-

Terminal Window:

```
bhos12@us20041ts: ~  
bhos12@us20041ts: $ kubectl delete services myminikube  
service "myminikube" deleted  
bhos12@us20041ts: $ minikube stop  
Stopping "minikube" in docker ...  
Powering off "minikube" via SSH ...  
Node "minikube" stopped.  
bhos12@us20041ts: $
```