

第 3 节

## Minikube for Windows安装

# 本课内容

- 演示本地安装Minikube for Windows 10专业版



# 先决条件

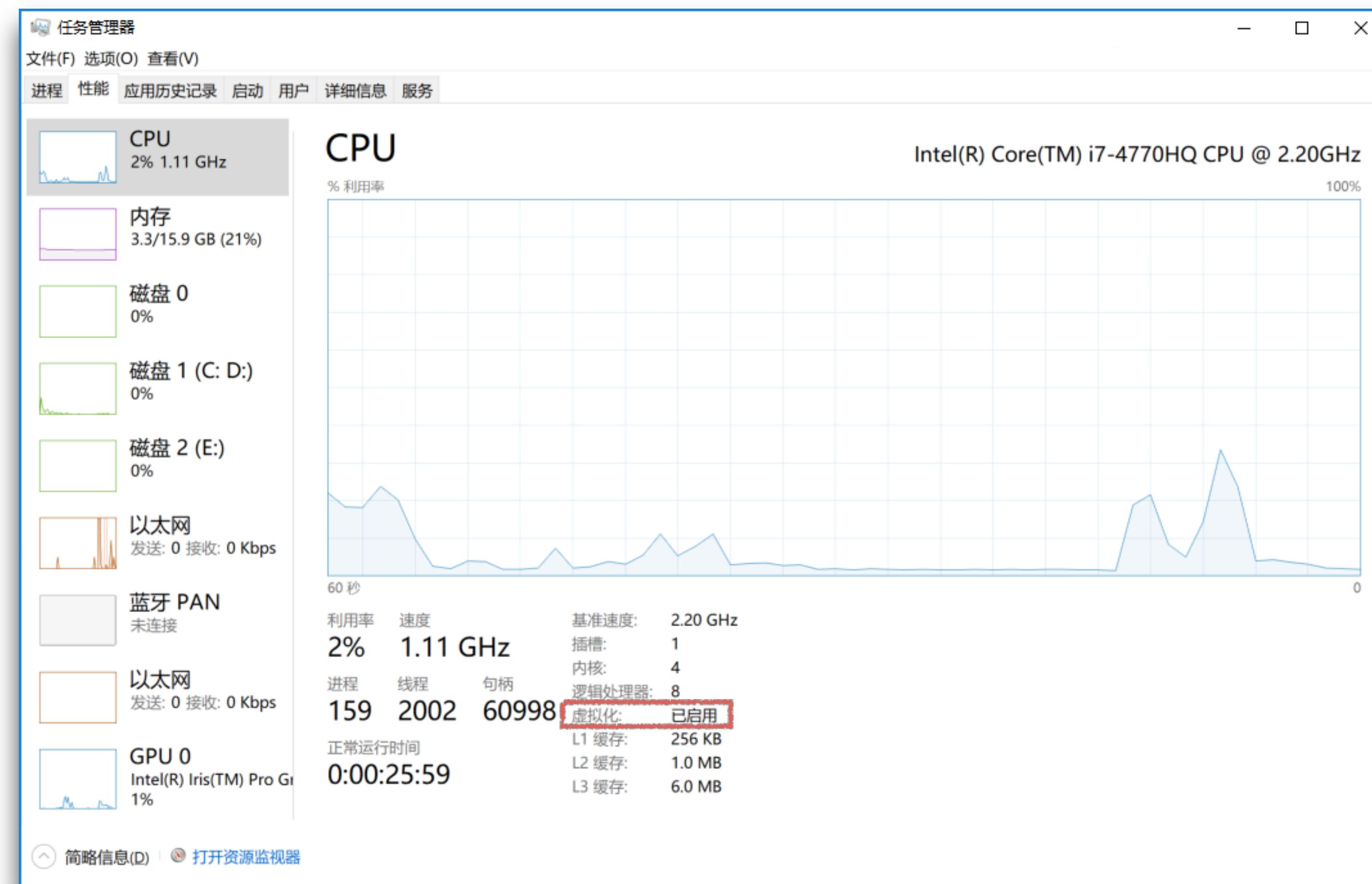
The screenshot shows a web browser displaying the [minikube documentation for Windows](https://minikube.sigs.k8s.io/docs/start/windows/). The page is titled "Windows" and includes sections for "Prerequisites" (with a red box highlighting the heading), "Installation" (with "Direct" and "Chocolatey" download links), and "Hypervisor Setup". The "Prerequisites" section lists the following requirements:

- Windows 8 or above
- A hypervisor, such as Hyper-V or VirtualBox
- Hardware virtualization support must be enabled in BIOS
- 4GB of RAM

The "Installation" section provides links to download the minikube installer from Direct or Chocolatey sources. The "Hypervisor Setup" section contains a note about checking for virtualization support using a terminal command.

<https://minikube.sigs.k8s.io/docs/start/windows/>

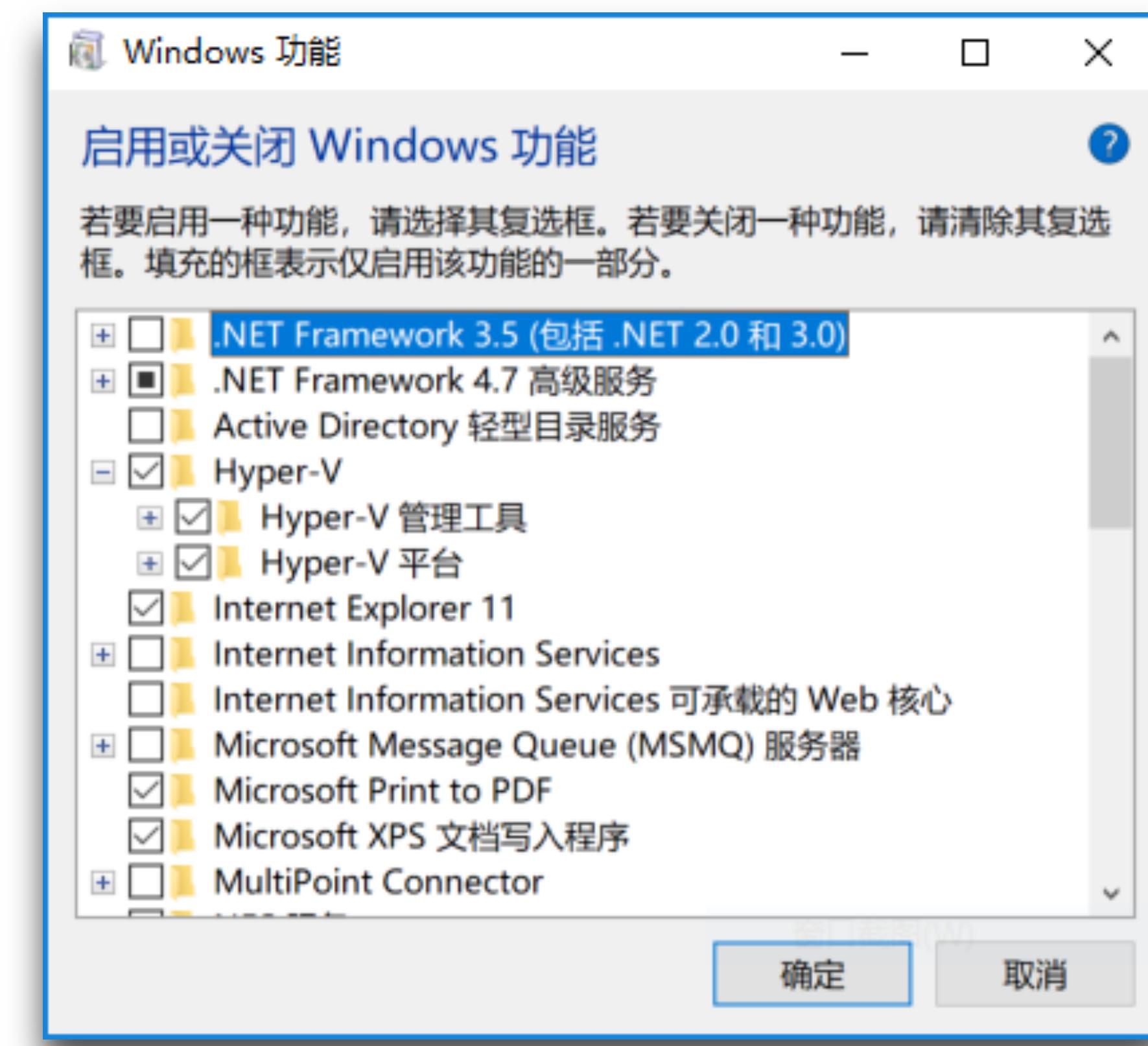
# 启用虚拟化



# Windows 10专业版



# 启用Hyper-V功能

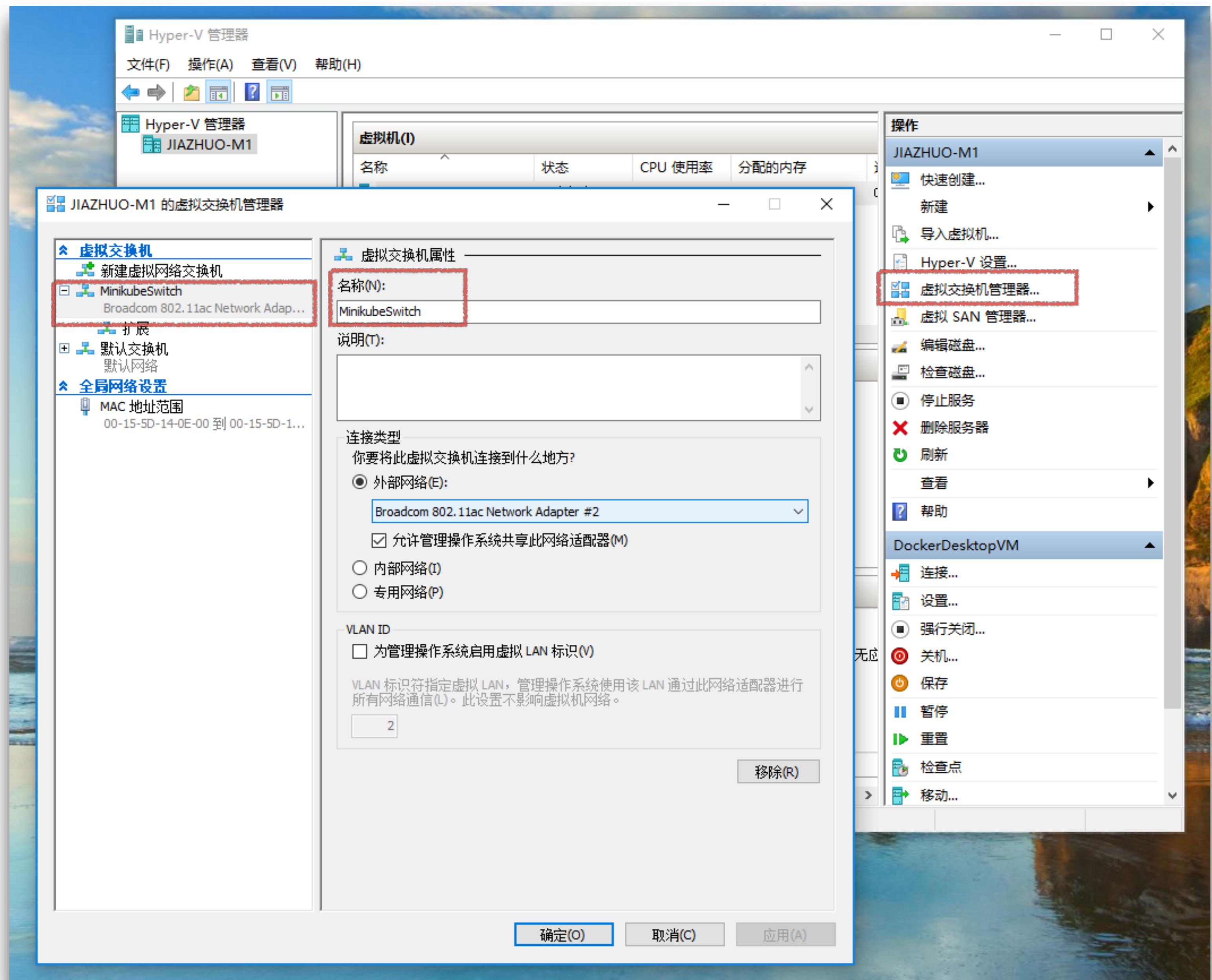


# 下载并安装Minikube命令行工具

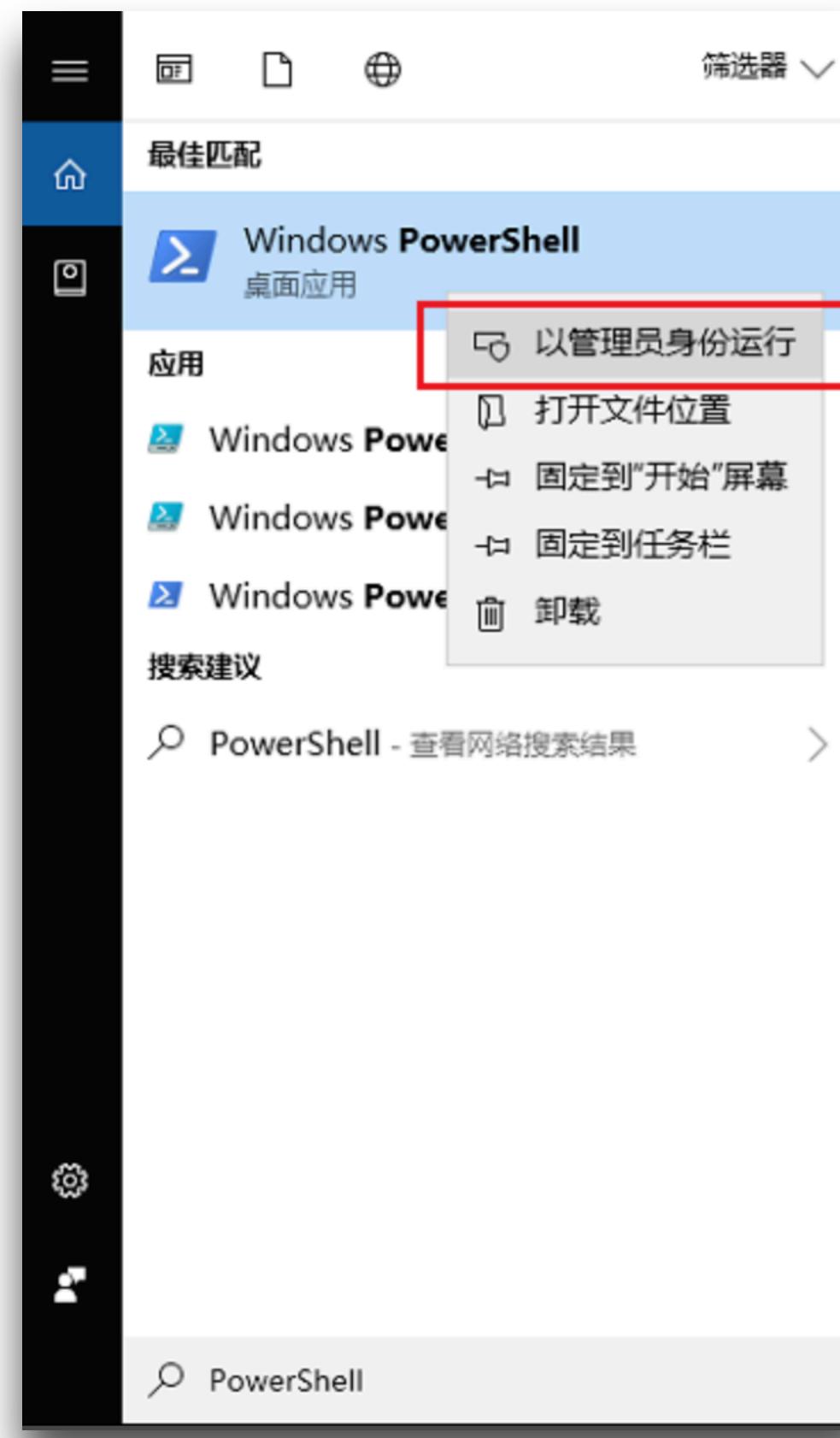
The screenshot shows a web browser window displaying the Minikube documentation for Windows. The URL in the address bar is <https://minikube.sigs.k8s.io/docs/start/windows/>. The page title is "Windows". The left sidebar contains links for Documentation, Overview, Getting Started (Linux, macOS, Windows), Examples, Core Tasks, Tutorials, Concepts, Reference, and Contributing. The main content area includes sections for Prerequisites (Windows 8 or above, Hyper-V or VirtualBox, BIOS support, 4GB RAM), Installation (Direct download link and Chocolatey package), Hypervisor Setup (systeminfo command), and a sidebar with links for Edit this page, Create documentation issue, Prerequisites, Installation, Hypervisor Setup, Getting to know Kubernetes, Increasing memory allocation, and Where to go next?

<https://minikube.sigs.k8s.io/docs/start/windows/>

# 创建虚拟交换机



# 命令行启用Hyper-V功能



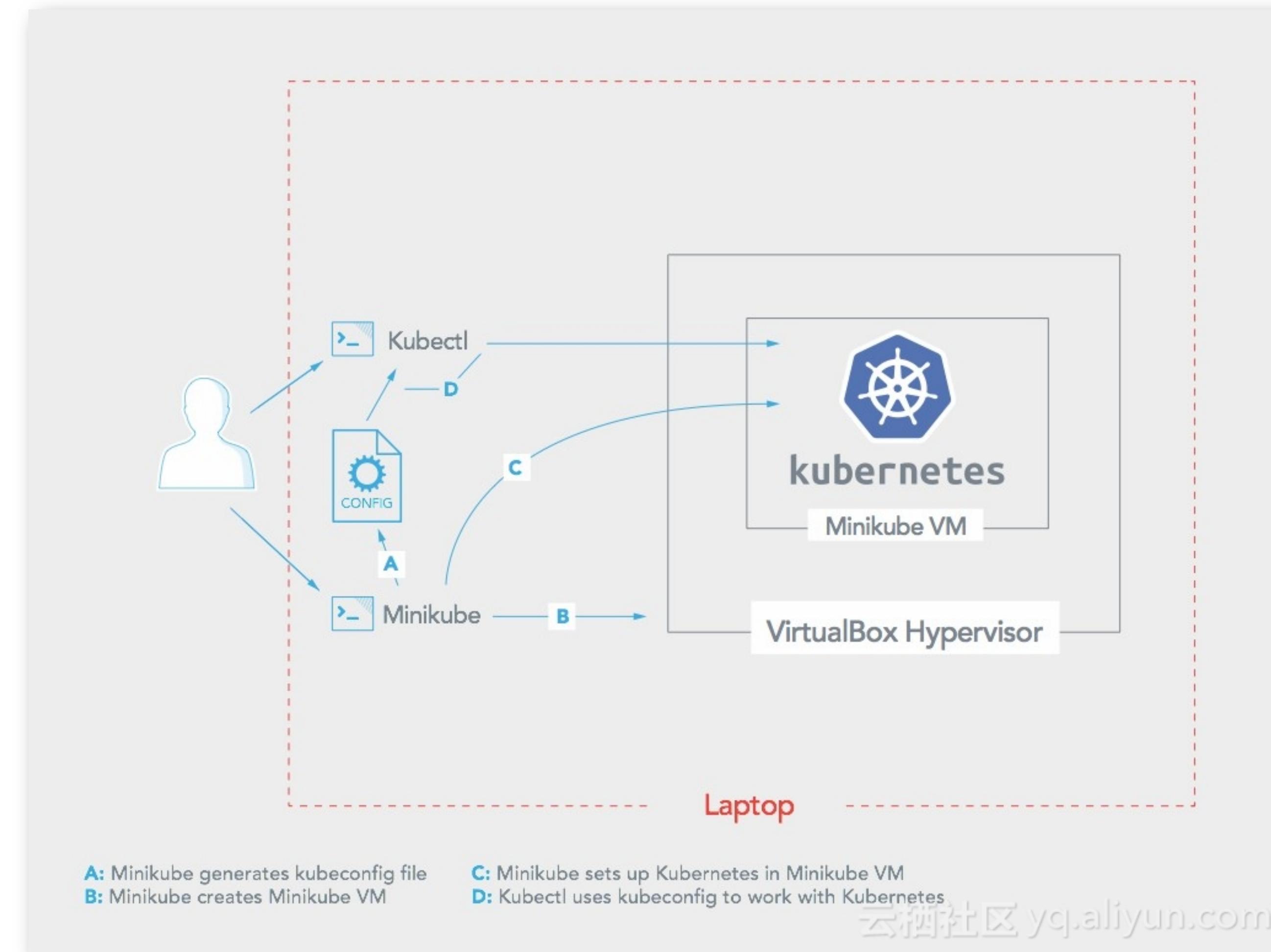
```
PS C:\Windows\system32> powershell1 Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All

Path          :
Online        : True
RestartNeeded : False

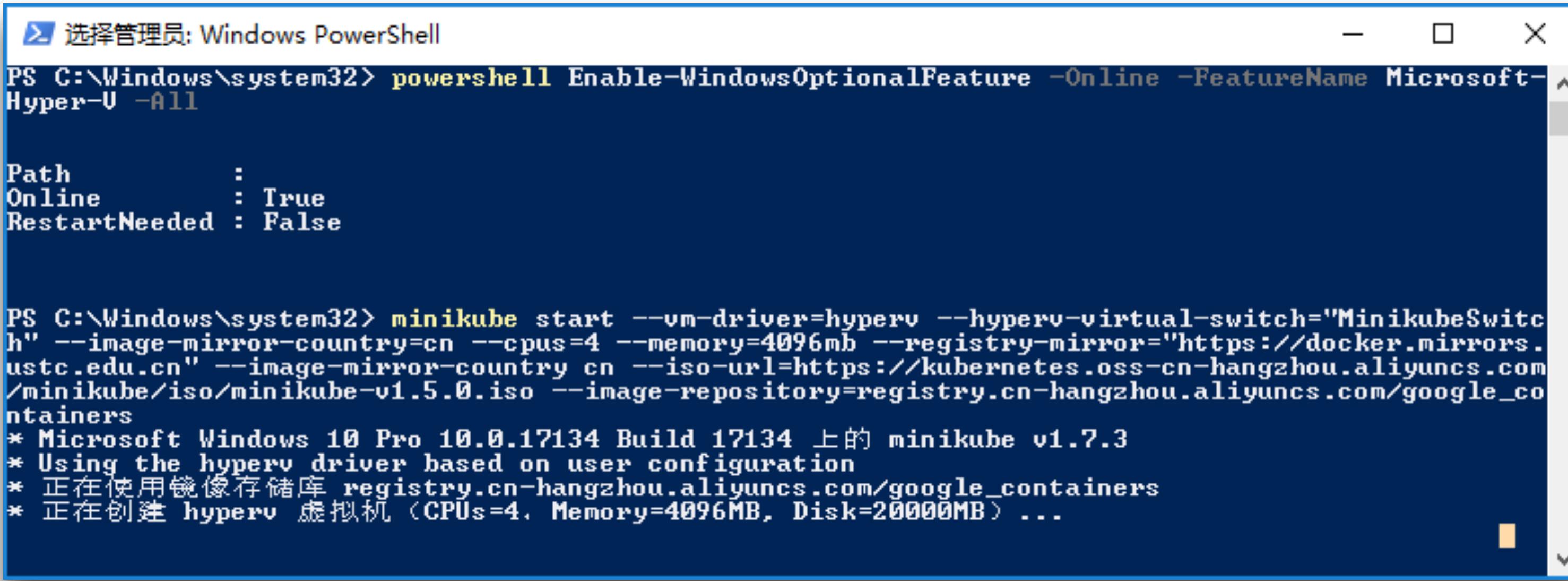
PS C:\Windows\system32>
```

powershell Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All

# Minikube部署架构



# 首次启动Minikube



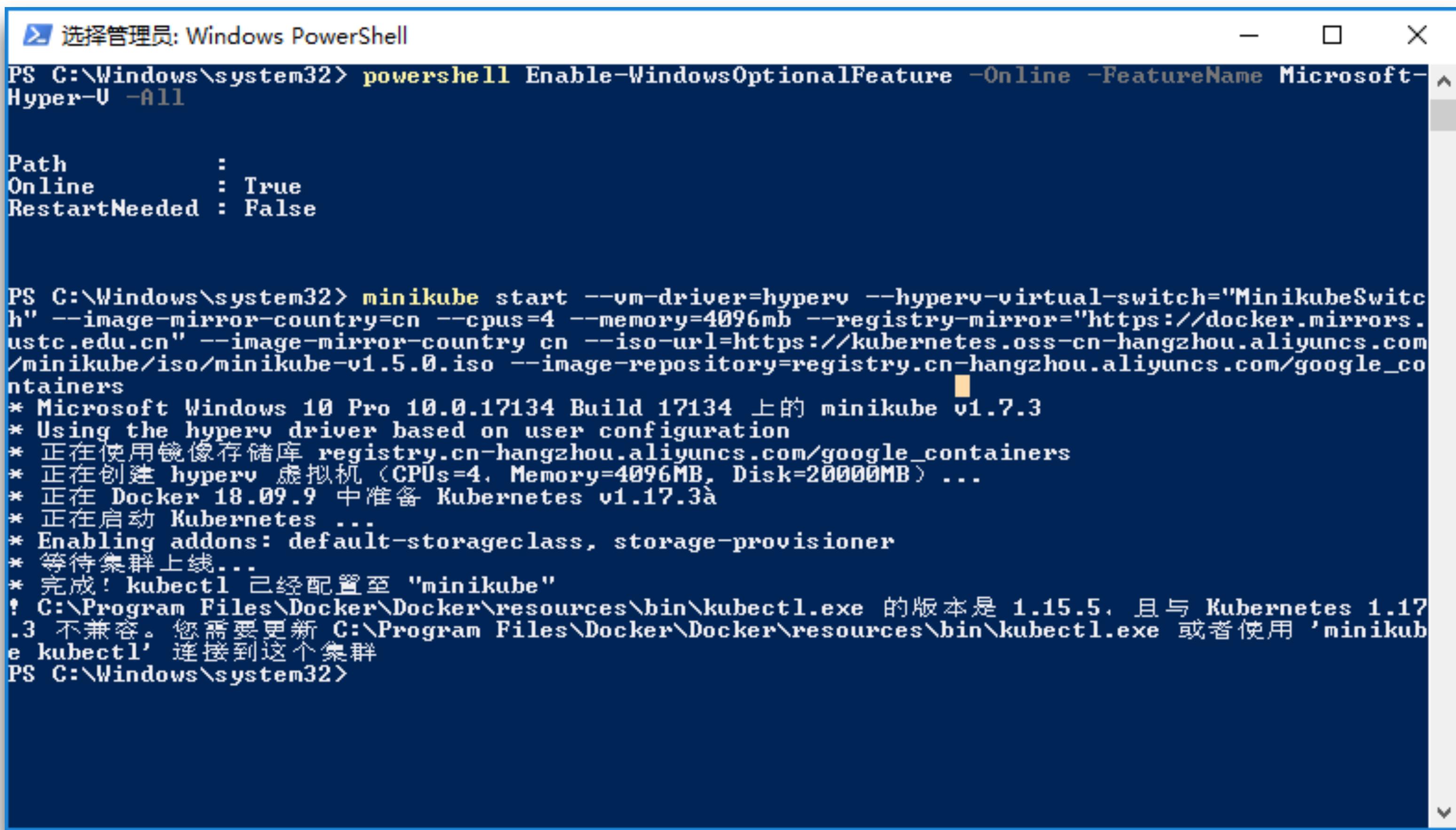
```
选择管理员: Windows PowerShell
PS C:\Windows\system32> powershell Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All

Path          : 
Online        : True
RestartNeeded : False

PS C:\Windows\system32> minikube start --vm-driver=hyperv --hyperv-virtual-switch="MinikubeSwitch" --image-mirror-country=cn --cpus=4 --memory=4096mb --registry-mirror="https://docker.mirrors.ustc.edu.cn" --image-mirror-country cn --iso-url=https://kubernetes.oss-cn-hangzhou.aliyuncs.com/minikube/iso/minikube-v1.5.0.iso --image-repository=registry.cn-hangzhou.aliyuncs.com/google_containers
* Microsoft Windows 10 Pro 10.0.17134 Build 17134 上的 minikube v1.7.3
* Using the hyperv driver based on user configuration
* 正在使用镜像存储库 registry.cn-hangzhou.aliyuncs.com/google_containers
* 正在创建 hyperv 虚拟机 (CPUs=4, Memory=4096MB, Disk=20000MB) ...
```

```
minikube start --vm-driver=hyperv --hyperv-virtual-switch="MinikubeSwitch" --image-mirror-country=cn --cpus=4 --memory=4096mb --registry-mirror="https://docker.mirrors.ustc.edu.cn" --iso-url=https://kubernetes.oss-cn-hangzhou.aliyuncs.com/minikube/iso/minikube-v1.7.3.iso --image-repository=registry.cn-hangzhou.aliyuncs.com/google_containers
```

# Minikube启动成功



The screenshot shows a Windows PowerShell window titled "选择管理员: Windows PowerShell". The command `powershell Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All` is run, followed by the output:

```
PS C:\Windows\system32> powershell Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All

Path          : 
Online        : True
RestartNeeded : False

PS C:\Windows\system32> minikube start --vm-driver=hyperv --hyperv-virtual-switch="MinikubeSwitch" --image-mirror-country=cn --cpus=4 --memory=4096mb --registry-mirror="https://docker.mirrors.ustc.edu.cn" --image-mirror-country cn --iso-url=https://kubernetes.oss-cn-hangzhou.aliyuncs.com/minikube/iso/minikube-v1.5.0.iso --image-repository=registry.cn-hangzhou.aliyuncs.com/google_containers
* Microsoft Windows 10 Pro 10.0.17134 Build 17134 上的 minikube v1.7.3
* Using the hyperv driver based on user configuration
* 正在使用镜像存储库 registry.cn-hangzhou.aliyuncs.com/google_containers
* 正在创建 hyperv 虚拟机 (CPUs=4, Memory=4096MB, Disk=20000MB) ...
* 正在 Docker 18.09.9 中准备 Kubernetes v1.17.3
* 正在启动 Kubernetes ...
* Enabling addons: default-storageclass, storage-provisioner
* 等待集群上线...
* 完成! kubectl 已经配置至 "minikube"
! C:\Program Files\Docker\ Docker\resources\bin\kubectl.exe 的版本是 1.15.5, 且与 Kubernetes 1.17.3 不兼容。您需要更新 C:\Program Files\Docker\ Docker\resources\bin\kubectl.exe 或者使用 'minikube kubectl' 连接到这个集群
PS C:\Windows\system32>
```

# 校验K8s安装

```
管理员: Windows PowerShell
e kubectl' 连接到这个集群
PS C:\Windows\system32> kubectl cluster-info
Kubernetes master is running at https://192.168.1.101:8443
KubeDNS is running at https://192.168.1.101:8443/api/v1/namespaces/kube-system/services/kube-dns
:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
PS C:\Windows\system32> kubectl get nodes
NAME      STATUS    ROLES   AGE     VERSION
minikube  Ready     master  2m49s  v1.17.3
PS C:\Windows\system32> kubectl get all -n kube-system
NAME                           READY   STATUS    RESTARTS   AGE
pod/coredns-7f9c544f75-5vvzm   1/1    Running   0          2m52s
pod/coredns-7f9c544f75-ssqdf   1/1    Running   0          2m52s
pod/etcd-minikube              1/1    Running   0          2m38s
pod/kube-apiserver-minikube   1/1    Running   0          2m38s
pod/kube-controller-manager-minikube  1/1    Running   0          2m38s
pod/kube-proxy-m8kd4           1/1    Running   0          2m51s
pod/kube-scheduler-minikube   1/1    Running   0          2m37s
pod/storage-provisioner        1/1    Running   0          2m53s

NAME                TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
service/kube-dns   ClusterIP  10.96.0.10  <none>        53/UDP,53/TCP,9153/TCP  2m58s

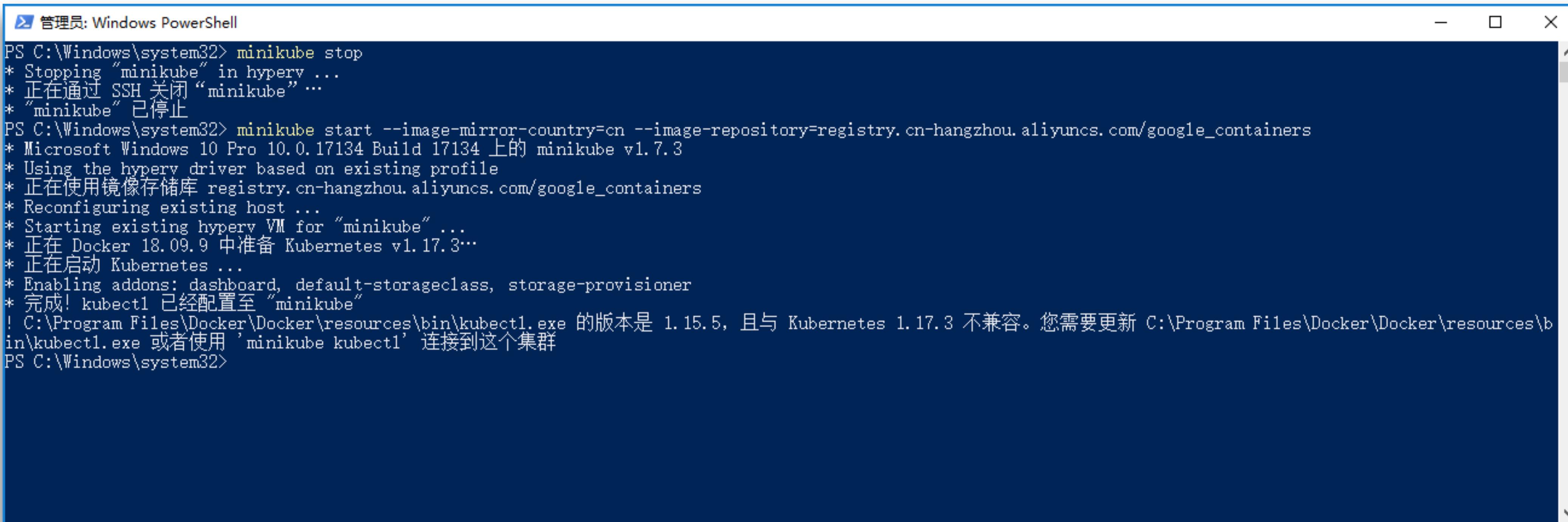
NAME           DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   AGE
daemonset.apps/kube-proxy   1         1         1        1            1           1          beta.kubernetes
.io/os=linux   2m58s

NAME           READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/coredns   2/2     2          2          2m58s

NAME           DESIRED   CURRENT   READY   AGE
replicaset.apps/coredns-7f9c544f75  2         2         2        2m52s

PS C:\Windows\system32> minikube status
host: Running
kublet: Running
apiserver: Running
kubeconfig: Configured
PS C:\Windows\system32>
```

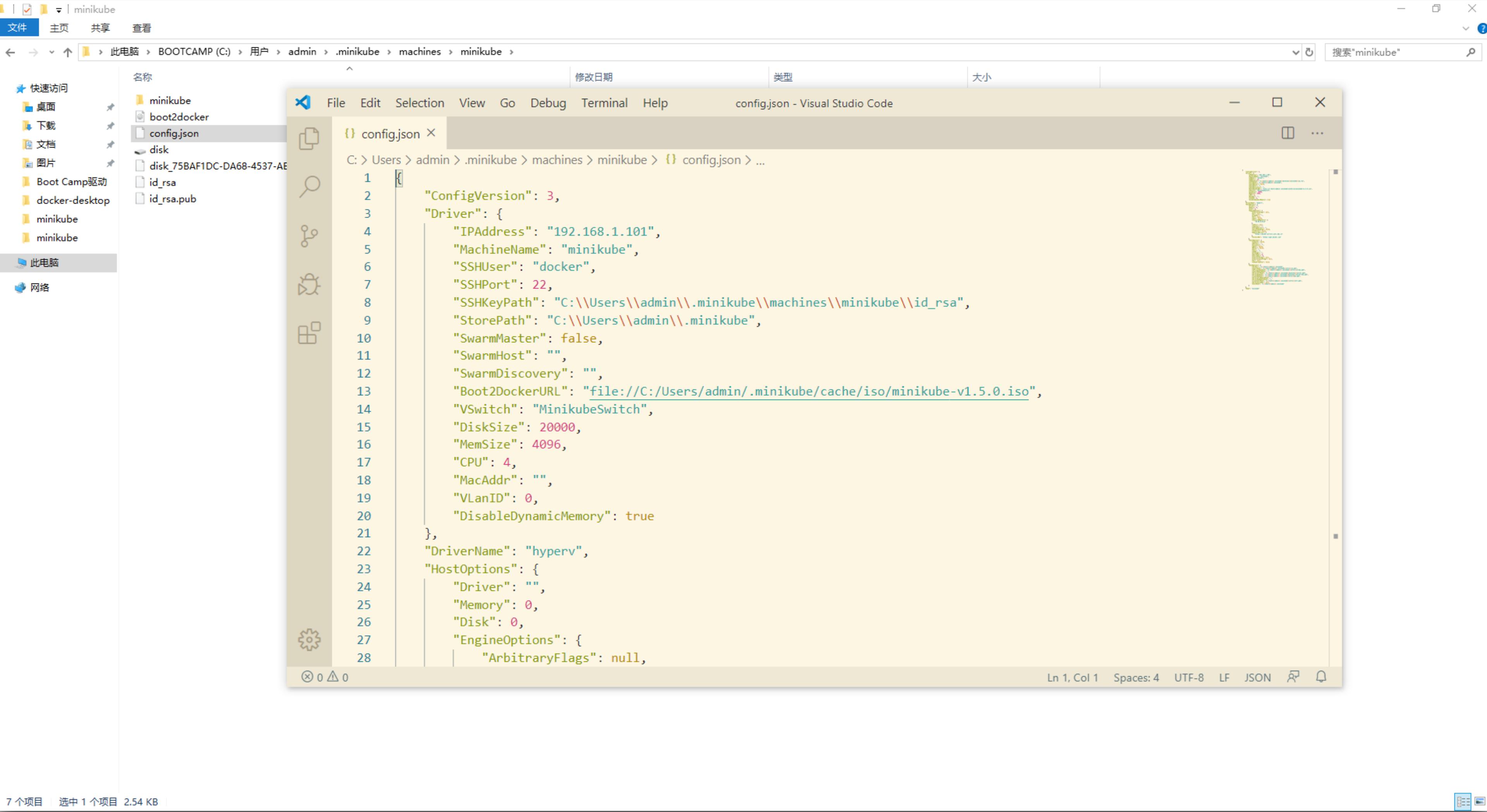
# 关闭并再次启动Minikube



```
PS C:\Windows\system32> minikube stop
* Stopping "minikube" in hyperv ...
* 正在通过 SSH 关闭 "minikube" ...
* "minikube" 已停止
PS C:\Windows\system32> minikube start --image-mirror-country=cn --image-repository=registry.cn-hangzhou.aliyuncs.com/google_containers
* Microsoft Windows 10 Pro 10.0.17134 Build 17134 上的 minikube v1.7.3
* Using the hyperv driver based on existing profile
* 正在使用镜像存储库 registry.cn-hangzhou.aliyuncs.com/google_containers
* Reconfiguring existing host ...
* Starting existing hyperv VM for "minikube" ...
* 正在 Docker 18.09.9 中准备 Kubernetes v1.17.3...
* 正在启动 Kubernetes ...
* Enabling addons: dashboard, default-storageclass, storage-provisioner
* 完成! kubectl 已经配置至 "minikube"
! C:\Program Files\Docker\Docker\resources\bin\kubectl.exe 的版本是 1.15.5, 且与 Kubernetes 1.17.3 不兼容。您需要更新 C:\Program Files\Docker\Docker\resources\bin\kubectl.exe 或者使用 'minikube kubectl' 连接到这个集群
PS C:\Windows\system32>
```

```
minikube start --image-mirror-country=cn --image-repository=registry.cn-
hangzhou.aliyuncs.com/google_containers
```

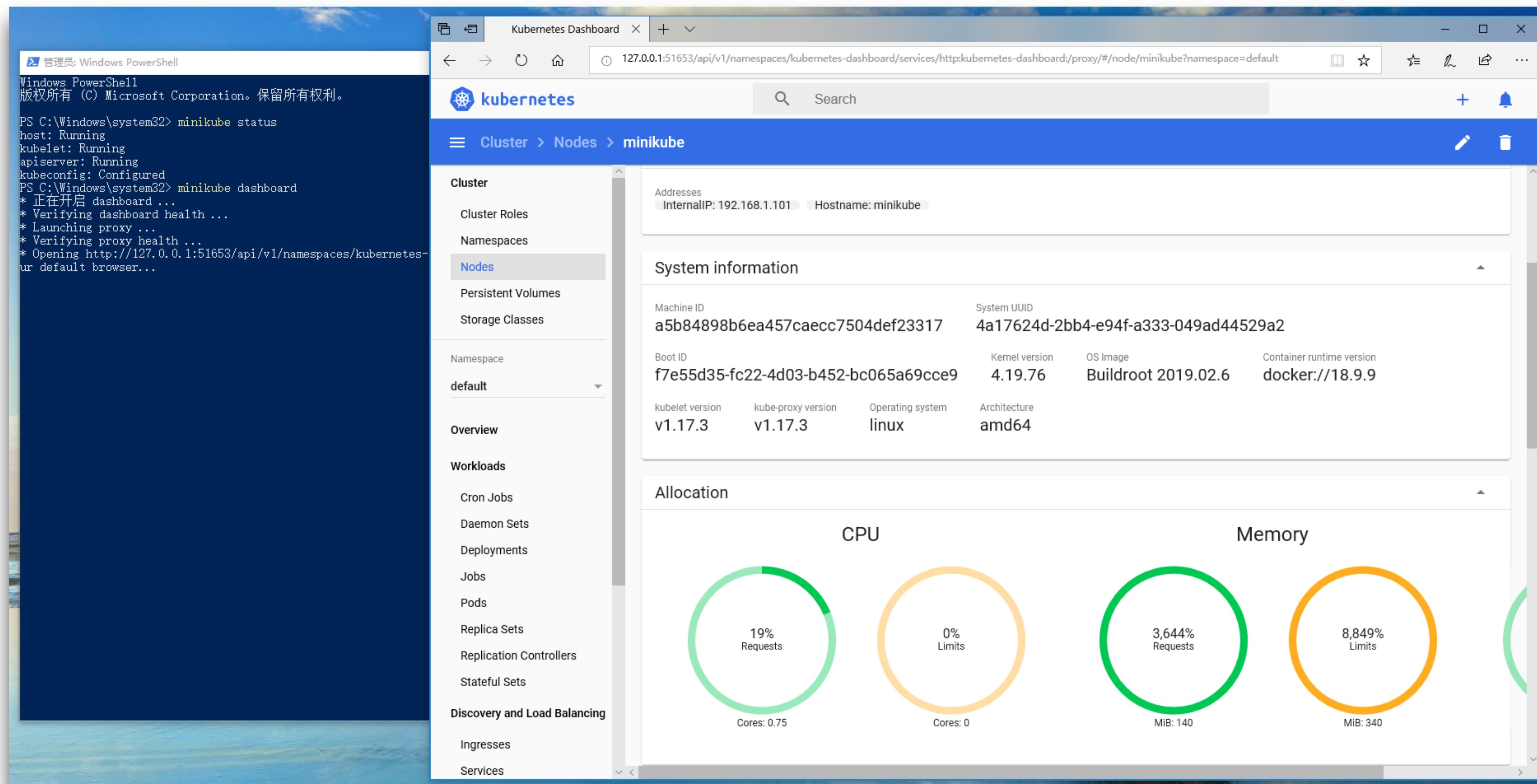
# Minikube machine config



The screenshot shows a Windows desktop environment with a File Explorer window open. The path in the address bar is: 此电脑 > BOOTCAMP (C:) > 用户 > admin > .minikube > machines > minikube >. The 'config.json' file is selected in the list view. To the right, a Visual Studio Code editor window is open, displaying the contents of the config.json file. The code defines a machine configuration with various parameters such as IP address, driver type (hyperv), and disk size.

```
1  {
2      "ConfigVersion": 3,
3      "Driver": {
4          "IPAddress": "192.168.1.101",
5          "MachineName": "minikube",
6          "SSHUser": "docker",
7          "SSHPort": 22,
8          "SSHKeyPath": "C:\\\\Users\\\\admin\\\\.minikube\\\\machines\\\\minikube\\\\id_rsa",
9          "StorePath": "C:\\\\Users\\\\admin\\\\.minikube",
10         "SwarmMaster": false,
11         "SwarmHost": "",
12         "SwarmDiscovery": "",
13         "Boot2DockerURL": "file:///C:/Users/admin/.minikube/cache/iso/minikube-v1.5.0.iso",
14         "VSwitch": "MinikubeSwitch",
15         "DiskSize": 20000,
16         "MemSize": 4096,
17         "CPU": 4,
18         "MacAddr": "",
19         "VLanID": 0,
20         "DisableDynamicMemory": true
21     },
22     "DriverName": "hyperv",
23     "HostOptions": {
24         "Driver": "",
25         "Memory": 0,
26         "Disk": 0,
27         "EngineOptions": {
28             "ArbitraryFlags": null
29         }
30     }
31 }
```

# 启用并访问K8s dashboard



# 本课小结



- 演示Windows安装Minikube
  - 先决条件: win10专业或企业版, 启用硬件虚拟化Hyper-V, 否则使用VirtualBox虚拟化软件(`--vm-driver=virtualbox`)
  - Hyper-V管理界面创建交换机
  - 管理员身份运行命令行或powershell(首次安装和后续运行Minikube)
  - `--image-mirror-country=cn`, 使用阿里云提供iso(首次安装)和k8s镜像仓库
  - 安装过程比较缓慢, 请耐心等待!
  - 安装参考(阿里云社区): <https://yq.aliyun.com/articles/221687>
  - 官方文档参考: <https://minikube.sigs.k8s.io/>