How to quickly install Kubernetes on Ubuntu

If you've ever wanted to know how to install Kubernetes and join a node to a master, here's how to do this with little to no frustration and liberty

By Jack Wallen | September 12, 2017, 9:3

Image: Jack Wallen

Unless you've had your head buried in a pile of Cat5 cables, you know what Kubernetes (https://kubernetes.io/) is. For those who are neck deep in cabling, Kubernetes is an open-source system used for automating the deployment, scaling, and management of containerized applications. Kubernetes is enterprise-ready and can be installed on various platforms.

However (isn't there always an however?), the installation of Kubernetes can sometimes be a

challenge. That's why I'm here. I want to show you how you can easily and quickly install Kubernetes on Ubuntu, initialize your master, join a node to your master, and deploy a service on the cluster.

I'll be demonstrating this with platform (specifically one inst one of Ubuntu Desktop 17.10)

Installing dependencies

The first thing you must do is This will be done on all mach cluster. The first piece to be i package that allows using ht sources). This can be installed with the following command:

```
sudo apt-get update && apt-get install -y apt-transport-https
```

Our next dependency is Docker. Our Kubernetes installation will depend upon this, so install it with:

```
sudo apt install docker.io
```

Once that completes, start and enable the Docker service with the commands

```
sudo systemctl start docker
sudo systemctl enable docker
```

You're now ready to install Kubernetes.

Installing Kubernetes

Installing the necessary components for Kubernetes is simple. Again, what we're going to install below must be installed on all machines that will be joining the cluster.

Our first step is to download ~~~~~~~~~~~~~~~~~~~~ all. Back at the terminal,
issue the following command~~~~~~~~~~~~~~~~~~~~~~

```
sudo curl -s https://package          | apt-key add
```

Next add a repository by crea~~~~~~~~~~~~~~~~~~~~~*netes.list* and enter the
following content:

```
deb http://apt.kubernetes.i
```

Save and close that file. Insta~~~~~~~~~~~~~~~~~~~~~~~ds:

```
apt-get update
apt-get install -y kubelet kubeadm kubectl kubernetes-cni
```

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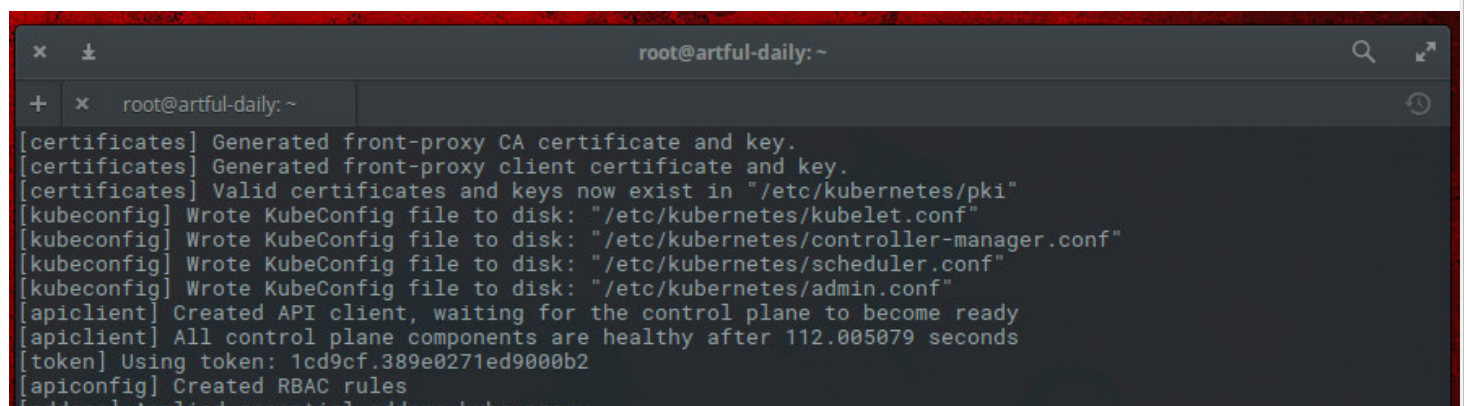**(TechRepublic)**

Initialize your master

With everything installed, go to the machine that will serve as the Kubernetes master and issue
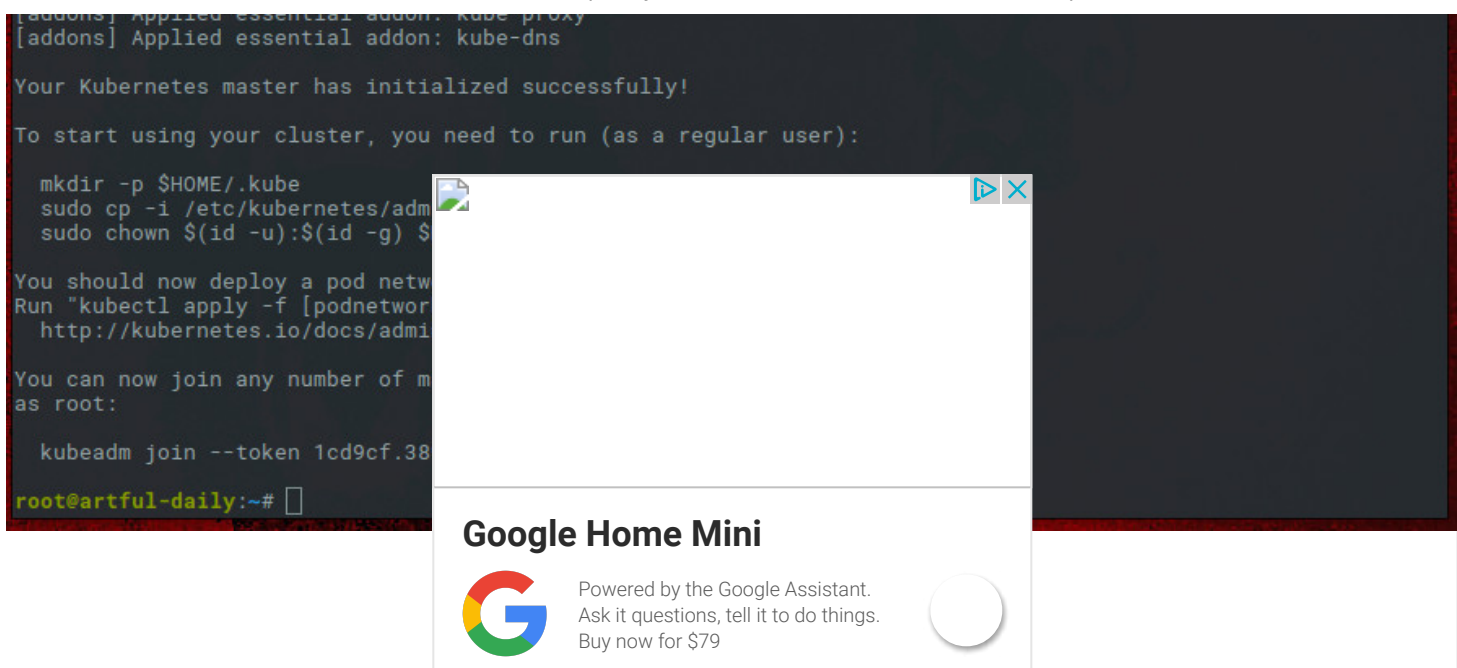the command:

```
sudo kubeadm init
```

When this completes, you'll be presented with the exact command you need to join the nodes to
the master (**Figure A**).

Figure A


```
[certificates] Generated front-proxy CA certificate and key.
[certificates] Generated front-proxy client certificate and key.
[certificates] Valid certificates and keys now exist in "/etc/kubernetes/pki"
[kubeconfig] Wrote KubeConfig file to disk: "/etc/kubernetes/kubelet.conf"
[kubeconfig] Wrote KubeConfig file to disk: "/etc/kubernetes/controller-manager.conf"
[kubeconfig] Wrote KubeConfig file to disk: "/etc/kubernetes/scheduler.conf"
[kubeconfig] Wrote KubeConfig file to disk: "/etc/kubernetes/admin.conf"
[apiclient] Created API client, waiting for the control plane to become ready
[apiclient] All control plane components are healthy after 112.005079 seconds
[token] Using token: 1cd9cf.389e0271ed9000b2
[apiconfig] Created RBAC rules
[addons] Applied essential addon: kube-proxy
```

```
[addons] Applied essential addon: kube-proxy
[addons] Applied essential addon: kube-dns

Your Kubernetes master has initialized successfully!

To start using your cluster, you need to run (as a regular user):

  mkdir -p $HOME/.kube
  sudo cp -i /etc/kubernetes/adm
  sudo chown $(id -u):$(id -g) $

You should now deploy a pod netw
Run "kubectl apply -f [podnetwor
  http://kubernetes.io/docs/admi

You can now join any number of m
as root:

  kubeadm join --token 1cd9cf.38

root@artful-daily:~#
```

Before you join a node, you need to issue the following commands (as a regular user):

```
mkdir -p $HOME/.kube
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
sudo chown $(id -u):$(id -g) $HOME/.kube/config
```

Deploying a pod network

You must deploy a pod network before anything will actually function properly. I'll demonstrate this by installing the Flannel pod network. This can be done with two commands (run on the master):

```
sudo kubectl apply -f
https://raw.githubusercontent.com/coreos/flannel/master/Documentation/kube-flannel.yml
sudo kubectl apply -f
https://raw.githubusercontent.com/coreos/flannel/master/Documentation/kube-flannel-rbac.yml
```

Issue the command *sudo kubectl get pods —all-namespaces* to see that the pod network has been deployed (**Figure B**).

Figure B


```
jack@artful-daily:~$ kubectl get pods --all-namespaces
NAMESPACE     NAME                                     READY   STATUS             RESTARTS   AGE
default       nginx-app-2634098556-31nbv               0/1     Pending            0          21m
kube-system   etcd-artful-daily                        1/1     Running            3          1h
kube-system   kube-apiserver-artful-daily              1/1     Running            3          1h
kube-system   kube-controller-manager-artful-daily     1/1     Running            3          1h
kube-system   kube-dns-2425271678-nzvgx                0/3     Pending            0          1h
kube-system   kube-flannel-ds-0dr30                     0/2     ContainerCreating  0          19s
kube-system   kube-flannel-ds-jxw9s                     1/2     Completed          1          19s
kube-system   kube-proxy-80j5k                          1/1     Running            3          1h
kube-system   kube-proxy-tjgqt                          1/1     Running            1          1h
kube-system   kube-scheduler-artful-daily              1/1     Running            3          1h
```

```
kube-system    kubernetes-dashboard-3313488171-g8c56    0/1    Pending    0    12m
```

Our Flannel pod network is ready.

Joining a node

With everything in place, you   . To do this, go to the node's
terminal and issue the comm

```
sudo kubeadm join --token T
```

Where TOKEN is the token y   aster and MASTER_IP is the
IP address of the master.

Once the node has joined, g   and *sudo kubectl get nodes*
to see the node has successfully joined (**Figure C**).
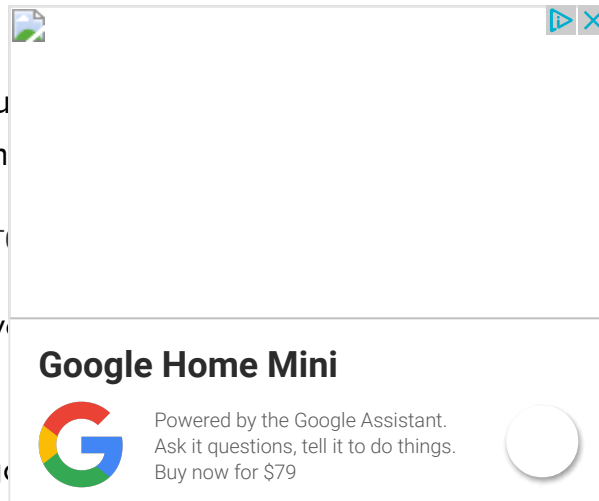
Figure C

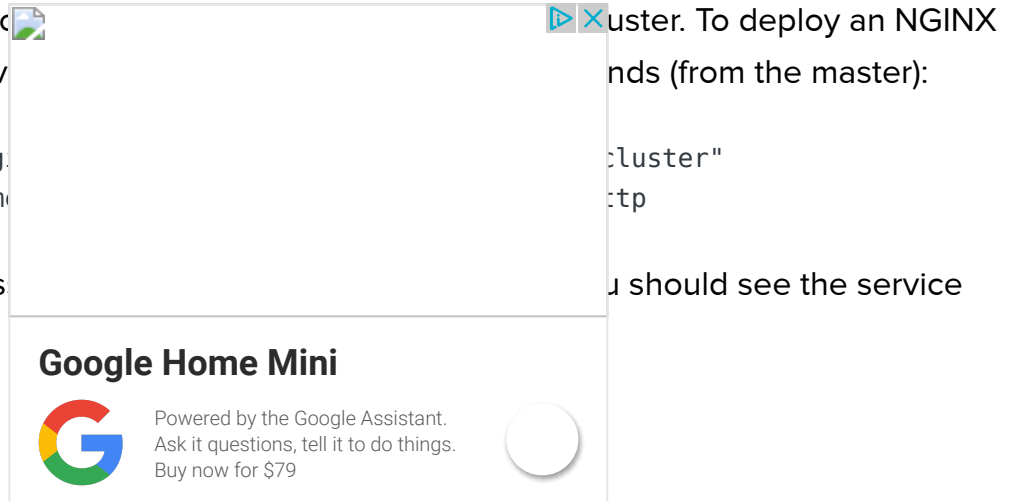Our node has joined the master.

Deploying a service

At this point, you are ready to uster. To deploy an NGINX service (and expose the servnds (from the master):

```
sudo kubectl run --image=ng                    :luster"
sudo kubectl expose deploym                     :tp
```

If you go to your node and isu should see the service listed (**Figure D**).

Figure D

Our service has been deployed.

Your Kubernetes cluster is ready

You now have a basic Kubernetes cluster, consisting of a master and a single node. Of course you

can scale your cluster by installing and adding more nodes. With these instructions, that should now be easy peasy.

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About Jack Wallen

Jack Wallen is an award-winning writer for TechRepublic and Linux.com. He's an avid promoter of open source and the voice of The Android Expert. For more news about Jack Wallen, visit his website jackwallen.com.

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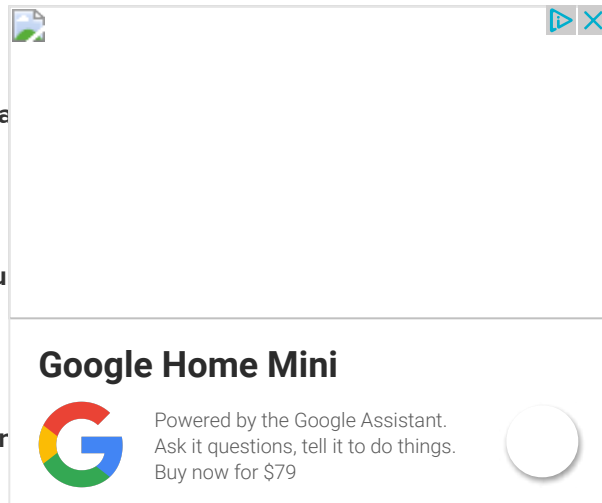
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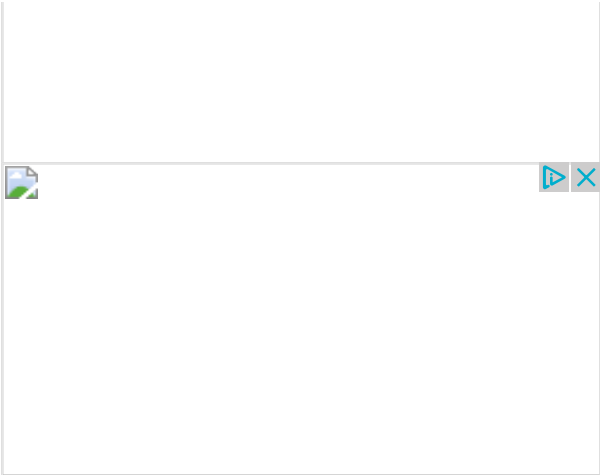
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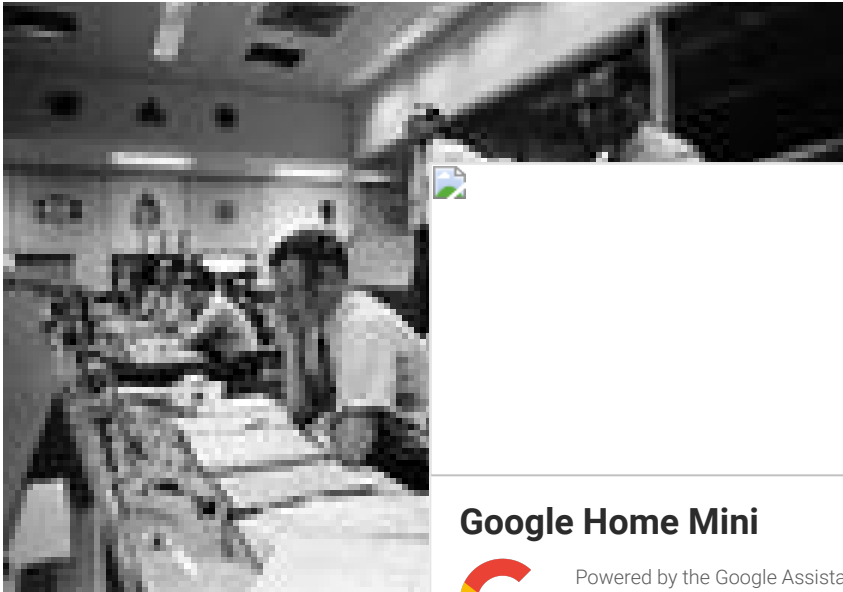
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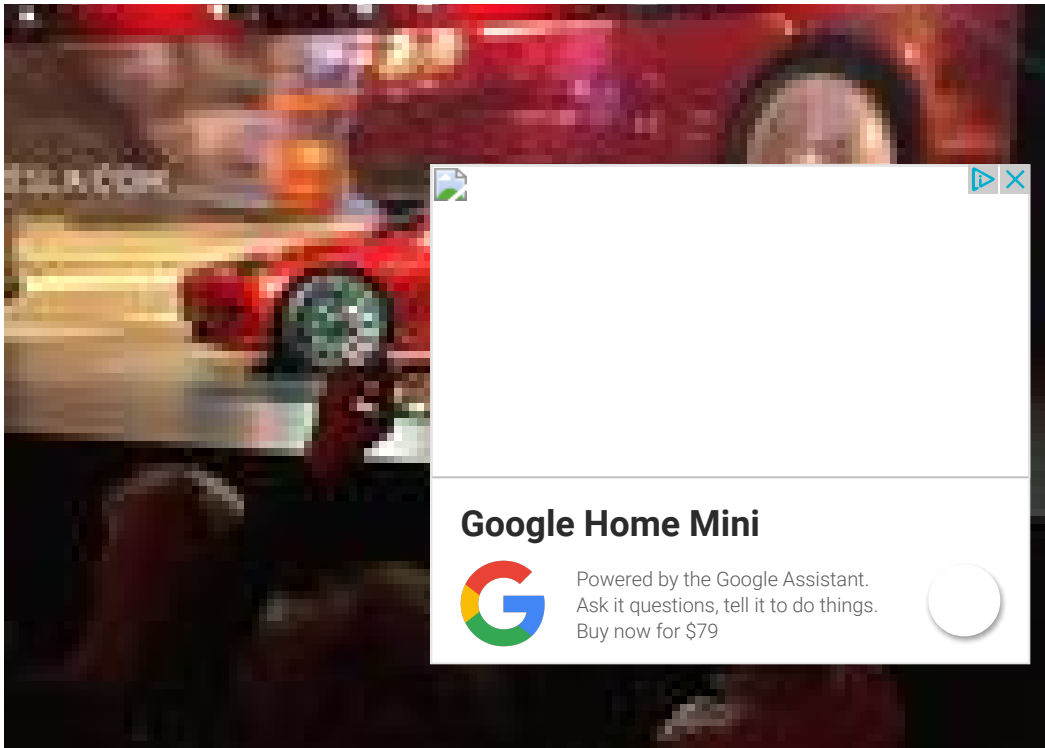
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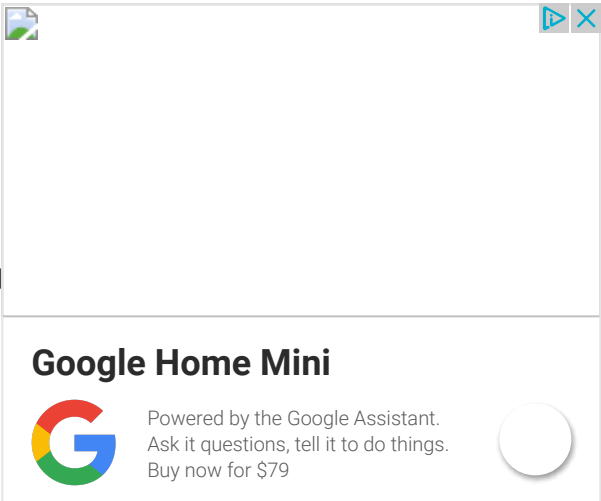
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