

# DevOps for Web Developers

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## Section 5

# Installing and Configuring Docker



## In this Section, we are going to take a look at...

- Understanding the difference between virtual machines and containers
- Installing and configuring Docker on CentOS
- Creating your first Docker container
- Understanding the client-server architecture of Docker
- Managing containers
- Creating a Docker image from Dockerfile

## Video 5.1

# *Understanding the Difference Between Virtual Machines and Containers*

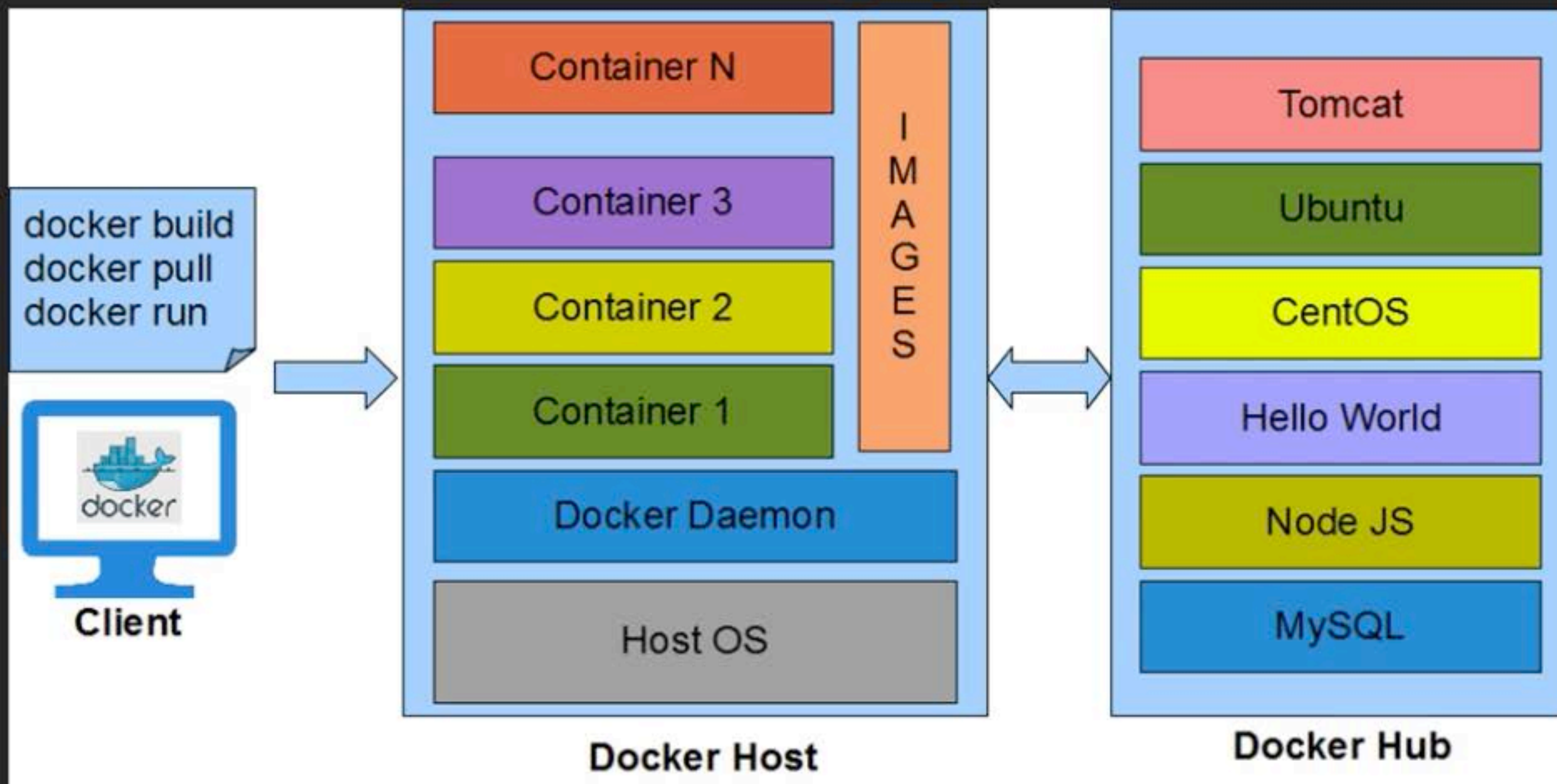


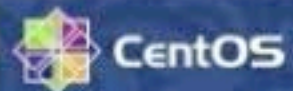
In this Video, we are going to take a look at...

- Learning to understand what is containers
- Finding out the reason behind the popularity of containers



# Docker – OS Virtualization





# Welcome to CentOS

## The Community ENTERprise Operating System

CentOS is an Enterprise-class Linux Distribution derived from sources freely provided to the public by Red Hat, Inc. for Red Hat Enterprise Linux. CentOS conforms fully with the upstream vendors redistribution policy and aims to be functionally compatible. (CentOS mainly changes packages to remove upstream vendor branding and artwork.)

CentOS is developed by a small but growing team of core developers. In turn the core developers are supported by an active user community including system administrators, network administrators, enterprise users, managers, core Linux contributors and Linux enthusiasts from around the world.

CentOS has numerous advantages including: an active and growing user community, quickly rebuilt, tested, and QA'ed errata packages, an extensive mirror network, developers who are contactable and responsive, Special Interest Groups (SIGs) to add functionality to the core CentOS distribution, and multiple community support avenues including a [wiki](#), [IRC Chat](#), [Email Lists](#), [Forums](#), [Bugs Database](#), and an [FAQ](#).



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Database, and an FAQ.

Welcome to CentOS - Mozilla Fir...

Packt  
3 / 4 1

user@localhost:~

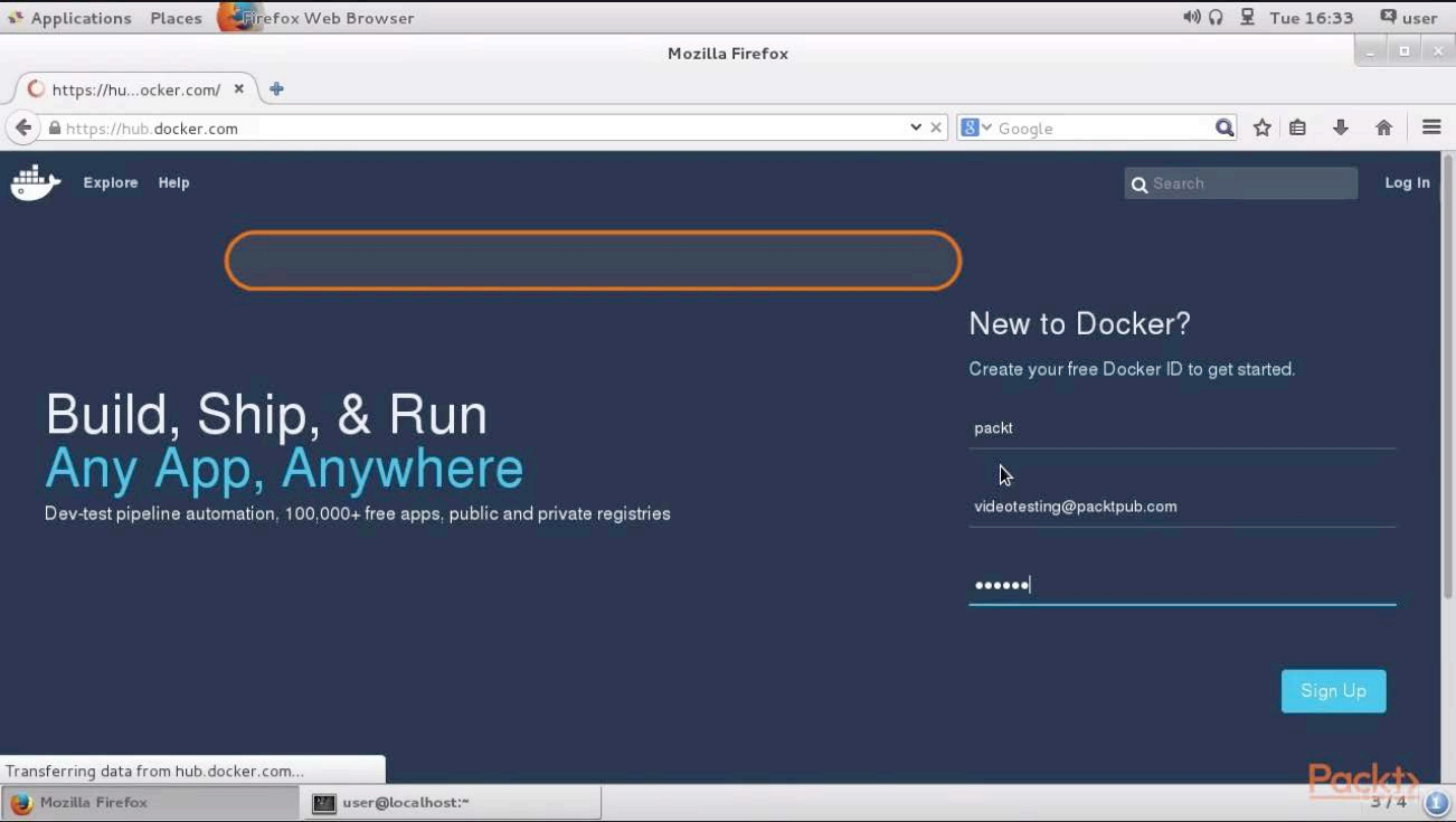
File Edit View Search Terminal Help

```
[user@localhost ~]$ docker run -i -t <image> /bin/bash
bash: image: No such file or directory
[user@localhost ~]$
```



# Docker – OS Virtualization

- Docker Hub is a Software as a Service (SaaS) for sharing and managing Docker containers
- It is a kind of centralized registry service provided by Docker
- As a user, we can use it to build and ship applications
- It allows us to create a pipeline to integrate with code repositories and for collaboration, image discovery, and automation



# Build, Ship, & Run Any App, Anywhere

Dev-test pipeline automation, 100,000+ free apps, public and private registries

## New to Docker?

Create your free Docker ID to get started.

packt

videotesting@packtpub.com

.....

Sign Up

Docker Hub

https://hub.docker.com/login/ Google



Would you like to remember the password for "packt" on docker.com?

Remember Password



# Welcome to Docker Hub

Login with your Docker ID

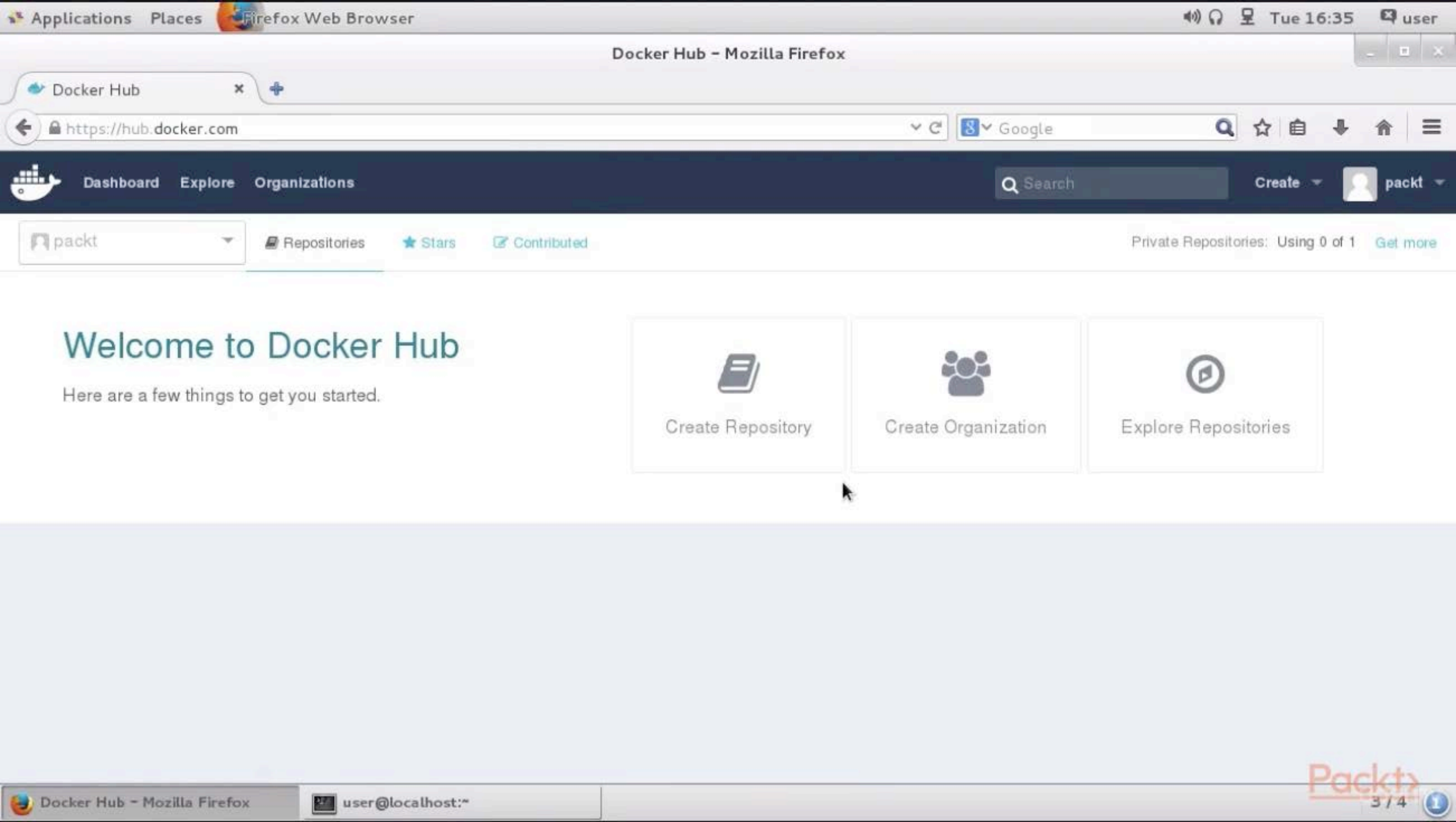
packt

.....

Logging In...

[Can't Login?](#) [Create Account](#)





# Welcome to Docker Hub

Here are a few things to get you started.



Create Repository



Create Organization



Explore Repositories


Docker Hub - Mozilla Firefox

Docker Hub


https://hub.docker.com

Search

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 Dashboard Explore Organizations

Search

Create ▾  packt ▾


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Repositories Stars Contributed


Private Repositories: Using 0 of 1 [Get more](#)

Welcome to Docker Hub

Here are a few things to get you started.

 Create Repository

 Create Organization

 Explore Repositories

Docker Store is the new place to discover public Docker content. [Try out the beta now](#) →

## Repositories (12136)

All



centos  
official

2.8K  
STARS

10M+  
PULLS

>  
DETAILS



blacklabelops/centos  
public | automated build

1  
STARS

10K+  
PULLS

>  
DETAILS



darksheer/centos  
public | automated build

1  
STARS

4.2K  
PULLS

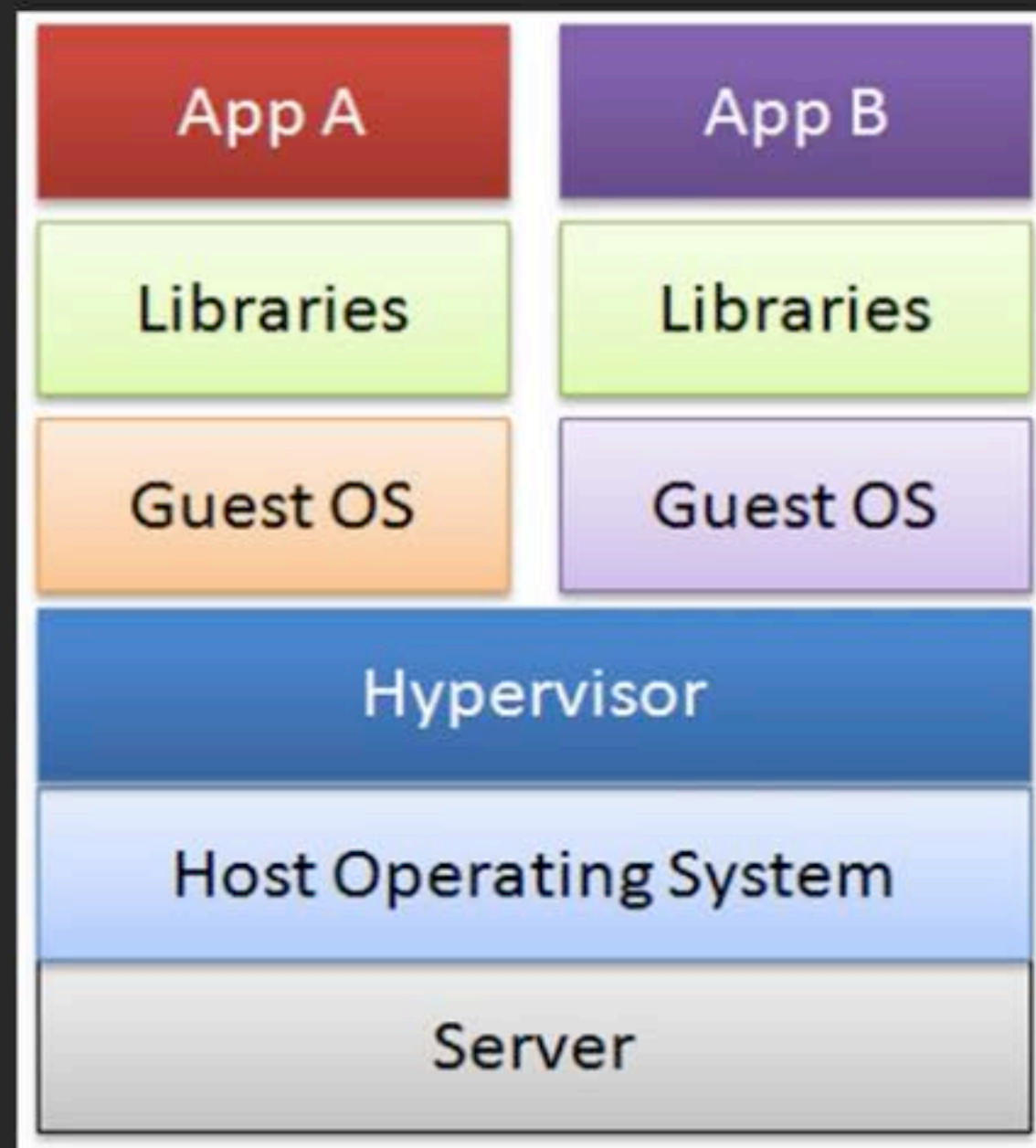
>  
DETAILS



# Virtual Machines Versus Containers

- Cloud computing has become part of almost all technical discussions
- Virtual machines have served a lot of people in utilizing resources efficiently
- Docker containers have given them competition

# Virtual Machines

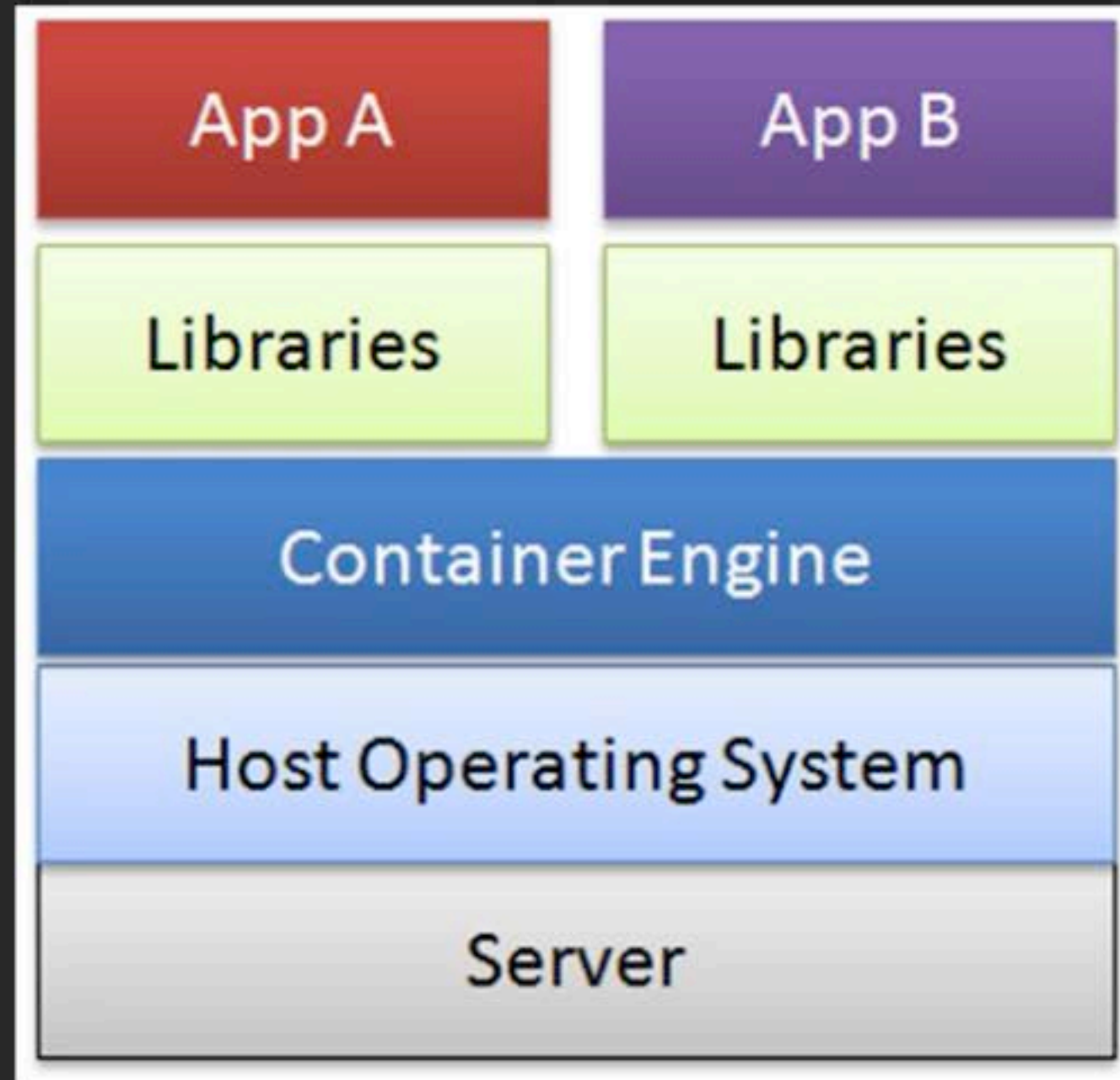


# Virtual Machines Components and Packages

- A VM has all the components a normal physical machine has in terms of operation
- In a VM, the hypervisor abstracts resources
- In a VM, the package includes not only the application but also the necessary binaries and libraries
- Cloud service providers use a hypervisor to provide a standard runtime environment for VMs



# Virtual Machines



# Functions of Containers

- Containers are small in size and hence effectively give faster and better performance
- Containers abstract the operating system
- A container runs as an isolated user space, with processes and filesystem in the user space on the host operating system itself, and it shares the kernel with other containers
- Sharing and resource utilization are at their best in containers, and more resources are available due to less overhead

Next Video

Installing and Configuring Docker on CentOS