

what is the problem to be solved

CEO view:

How can the highest levels of CPU, Memory and Storage capacity be consumed to provide efficient usage of compute resources? A goal is to manage electric power consumption and cooling without waste that occurs with (semi) idle computers.

# Where is Technology today

IT management team view:

Is there an alternative approach to applications running on virtualized servers on hyper-visor platforms ( Microsoft Hyper-V, VMWare, Citrix Xen ) ?

# Docker is the option

## Docker Up & Running

Shipping Reliable Containers in Production by  
**Karl Matthias & Sean P Kane**

When was this book published?

June 2015 first edition

# Docker Up&Running 1

Navigating this book      page XVI/bm18

Birth of Docker      page 1 bm23

The WEB youtube site is your friend:

<https://www.youtube.com/watch?v=at72dhg-SZY>

Ben Golub and Solomon Hykes

[https://www.youtube.com/watch?v=\\_DOXBVrIW78](https://www.youtube.com/watch?v=_DOXBVrIW78)

# Docker UP&Running 2

Benefits of Docker Workflow [page 4/bm23](#)

What Docker isn't [page 5/bm27](#)

Docker is not an Enterprise Virtual Platform

# Docker UP&Running 3

## What is Docker

Docker is container technology that makes it possible to get far more apps running on same ( old ) servers and it makes it easy to package and ship programs. (Steven Vaughn-Nichols for Linux and Open Source )

<http://www.zdnet.com/article/what-is-docker-and-why-is-it-so-darn-popular/>

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Docker enables running multiple applications ( henceforth apps ) on the same OS/Processor and maintain separation ( aka multi-tenancy )

Docker has notable less system resource overhead compared to a Hyper Visor running Vms. That allows for several more apps to run on a server ( than when using a hypervisor ).

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Workload Management Tool page 6/bm28

Has Broad Support and Adoption page 10

Network Ports and UNIX Sockets page 11

Robust Tooling CLI page 12

Container Networking page 13

Getting the Most from Docker page 14

Containers are not Virtual Machines page 15



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Packaging - Container Metaphor

Important Terminology page 25/ bm47

Install on Ubuntu page 27/bm 49

Test the Setup page 38

Proceed to a terminal window and look at a few CLIs

# Docker UP&Running 8

```
$ sudo docker version
```

```
Client version: 1.6.2
```

```
Client API version: 1.18
```

```
Go version (client): go1.2.1
```

```
Git commit (client): 7c8fca2
```

```
OS/Arch (client): linux/amd64
```

```
Server version: 1.6.2
```

```
Server API version: 1.18
```

```
Go version (server): go1.2.1
```

```
Git commit (server): 7c8fca2
```

```
OS/Arch (server): linux/amd64
```

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What are Containers page 59/bm 81 ( this is chapter 5 )

what is a container

Origins for containers include Free-BSD Jails, Solaris Zones, and more currently LXC ( Linux Containers )

consider looking at man page for chroot

<https://en.wikipedia.org/wiki/Chroot>

<https://linuxcontainers.org/>

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Creating a Container Running bash      page 63/bm 84

```
docker create --name="awesome-service" ubuntu:latest
```

```
docker run --rm -ti ubuntu:latest /bin/bash
```

Resource Quotas                      page 67/ bm89

Docker Documentation                page 68    resolves to the link below:

<https://docs.docker.com/engine/installation/linux/ubuntu/linux/>

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A container is a tree of processes page 75/bm 97

Things to do at the CLI page 79/bm 102

`sudo docker version`

`sudo docker info`

`sudo docker --help`

`sudo docker create --help`

# Docker Up&Running 12

- j-ThinkPad-T430s ~ # `docker ps`

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS	NAMES	

- j-ThinkPad-T430s ~ # `docker run -d -t ubuntu /bin/bash`

- efa94fcacf102b94d49f7216f669e0411c61764ea9b6b0597d26662a2b8b85eb3

- j-ThinkPad-T430s ~ # `docker ps`

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS	NAMES	

efa94fcacf102	ubuntu:latest	"/bin/bash"	6 seconds ago
Up 5 seconds		stoic_morse	

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Getting Inside a Running Container page 83/bm 105

```
j-ThinkPad-T430s ~ # docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	
STATUS	PORTS	NAMES		
efa94fcf102	ubuntu:latest	"/bin/bash"	9 minutes ago	Up 9
minutes	stoic_morse			

```
j-ThinkPad-T430s ~ #
```

```
root@efa94fcf102:/#
```

```
root@efa94fcf102:/# pwd
```

```
/
```

```
root@efa94fcf102:/#
```

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Execution Drivers    pg 149/bm 171

libcontainer and LXC    pg 151/bm 173

LXD                      pg 153/bm 175



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Security	page 164/bm 186
SELinux/AppArmor	page 169/bm 191