

Introduction to Docker Enterprise Edition

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The future of Linux Containers



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Docker Momentum in Three Years



14M

Docker
Hosts



900K

Docker
apps



77K%

Growth in Docker
job listings



12B

Image pulls
Over 390K%
Growth



3300

Project
Contributors

Docker Advances Mainstream Container Adoption

Open Source

Advancing the container industry with new open source projects

LinuxKit

Toolkit for building secure, lean and portable Linux subsystems

Moby Project

Library of components and framework for container ecosystem

Community Edition (CE)

Small DIY teams to started with Docker

Free to use and available for desktop, cloud and community Linux distros

Includes swarm mode orchestration, security and networking.


































Enterprise Edition (EE)

Enterprise IT teams that build and run critical apps at scale in production

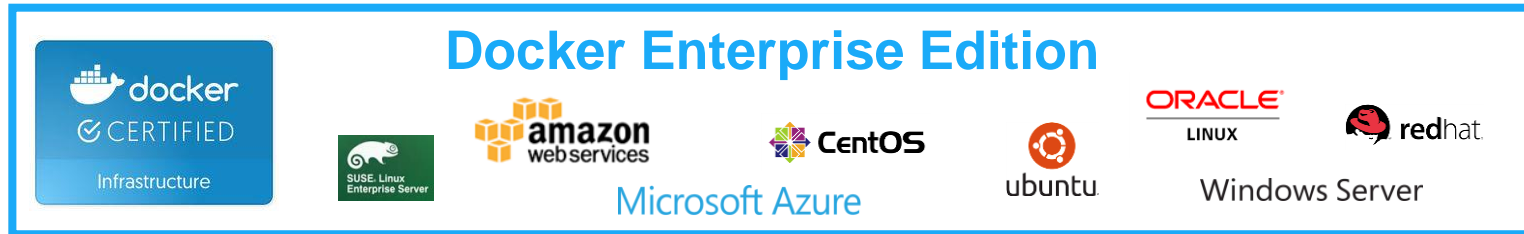
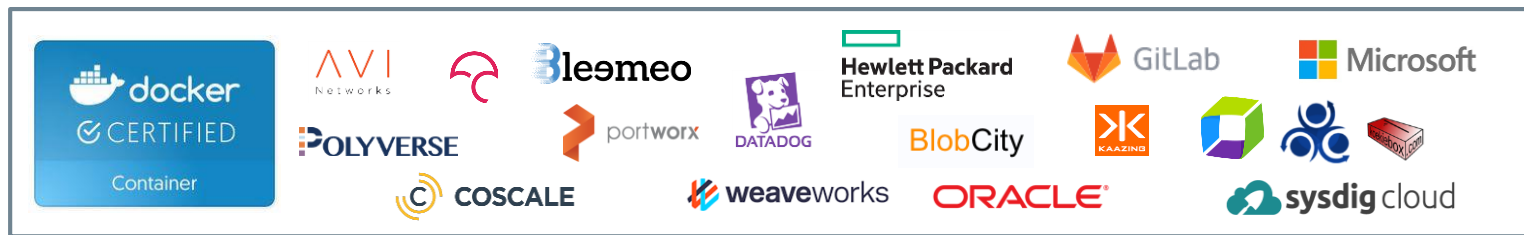
Subscription (software, support and certification) for cloud, enterprise x86, mainframe Linux and Windows Server 2016

Includes integrated orchestration, management, security and access control.

Docker in the Enterprise

 Service Provider	 Healthcare & Science	 Financial Services	 Tech	 Insurance	 Public Sector
  	   	    	    	    	    

Certified Technology Ecosystem



Docker delivers benefits



Agility

13X

More software releases

65%

Reduction in developer
onboarding time



Portability

41%

Move workloads across
private/public clouds

Eliminate

“works on my machine”
issues



Control

62%

Report reduction in MTTR

10X

Cost reduction in maintaining
existing applications

Container revolution



Docker Basics



Docker Image

The basis of a Docker container



Docker Container

The standard unit in which the application service resides



Docker Engine

Creates, ships and runs Docker containers deployable on physical or virtual host locally, in a datacenter or cloud service provider
(*Be careful of “FrankenDocker”, only Docker and official partners support authentic Docker)



Docker Trusted Registry

On-premises registry for image storing and secure collaboration



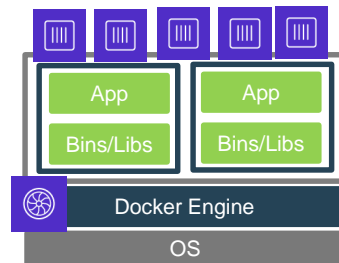
Universal Control Plane

Container orchestration and deployment tool, giving organizations the ability to provision and cluster containers across environments, built on **Docker Swarm** - A powerful, scalable clustering solution for Docker engines and can leverage all existing Docker APIs



Docker Compose / Docker Stack

Allows users to deploy multi-container applications into any Dockerized environment



Docker and Microsoft delivers integrated tooling across the application lifecycle



Build



Ship



Run



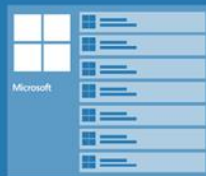
Visual Studio

Visual Studio Tools
for Docker



Docker for
Windows

Library of Microsoft
images on Docker Hub



Docker Datacenter for orchestration,
management and security



Microsoft Operations Management Suite
for hybrid cloud visibility and control



Windows Server

Docker containers available for Windows
Server running on any infrastructure






















Microsoft
Hyper-V



Azure

- New
- Dashboard
- Virtual machine scal...
- Virtual machines
- Azure Active Directo...
- Team Services accou...
- Team projects
- Automation Accounts
- App Services
- More services >

Dashboard + New dashboard Edit dashboard Share Fullscreen Clone Delete

<div></div> <div>Docker EE for Azure (Standard/Advanced)</div>	Resources PIETERD-MTA		Resources PIETERD-OMS			
		pieterd-ubu-as	Availability set		pieterdautom	Automation Account
		pieterd_mgr_as	Availability set		pieterdappins	Application Insights
		pieterd_wrk_as	Availability set		omswedocker	Log Analytics
		pieterd_mgr0	Virtual machine		ApplicationInsights(om-	Solution
		pieterd_wrk0	Virtual machine		AzureAutomation(oms-	Solution
		pieterd_wrk1	Virtual machine		Containers(omswedoc-	Solution
		pieterd_wrk2	Virtual machine		Updates(omswedocker)	Solution
<div></div>		pieterd_mgr_lb	Load balancer		pieterdlogs	Storage account
		pieterd_wrk_lb	Load balancer			
	See more					

```
Bash ?
type "az account list" to see your subscriptions.
type "help" to learn more about Cloud Shell.

pieterd@Azure:~$ cat /proc/1/cgroup
1:memory:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
0:freezer:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:hugetlb:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:cpu,cpuacct:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:perf_event:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:net_cls,net_prio:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:blkio:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:cpuset:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:devices:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
:pids:/docker/e94784bf9d832f461963ad633b10d4055fbc6c548ef2f82842b66bd5ed1a693a
```

Microsoft images on Docker hub

Docker Store is the new place to discover public Docker content. [Check it out →](#)

Dashboard Explore Organizations Create pdebruin

Repositories (150)

Downloads







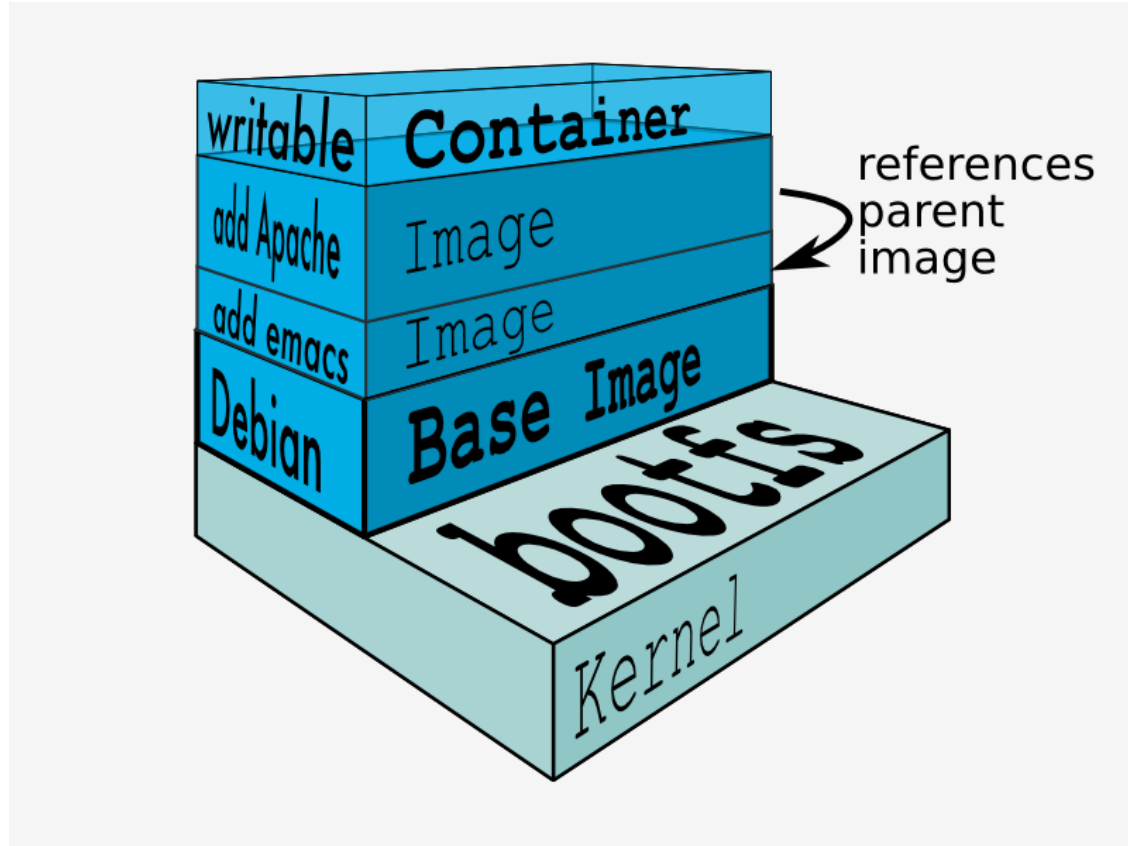
 microsoft/oms public automated build	20 STARS	10M+ PULLS	> DETAILS
 microsoft/dotnet public automated build	529 STARS	5M+ PULLS	> DETAILS
 microsoft/vsts-agent public	28 STARS	1M+ PULLS	> DETAILS
 mono official	228 STARS	1M+ PULLS	> DETAILS
 microsoft/iis public	119 STARS	1M+ PULLS	> DETAILS
 microsoft/azure-cli	87	1M+	>

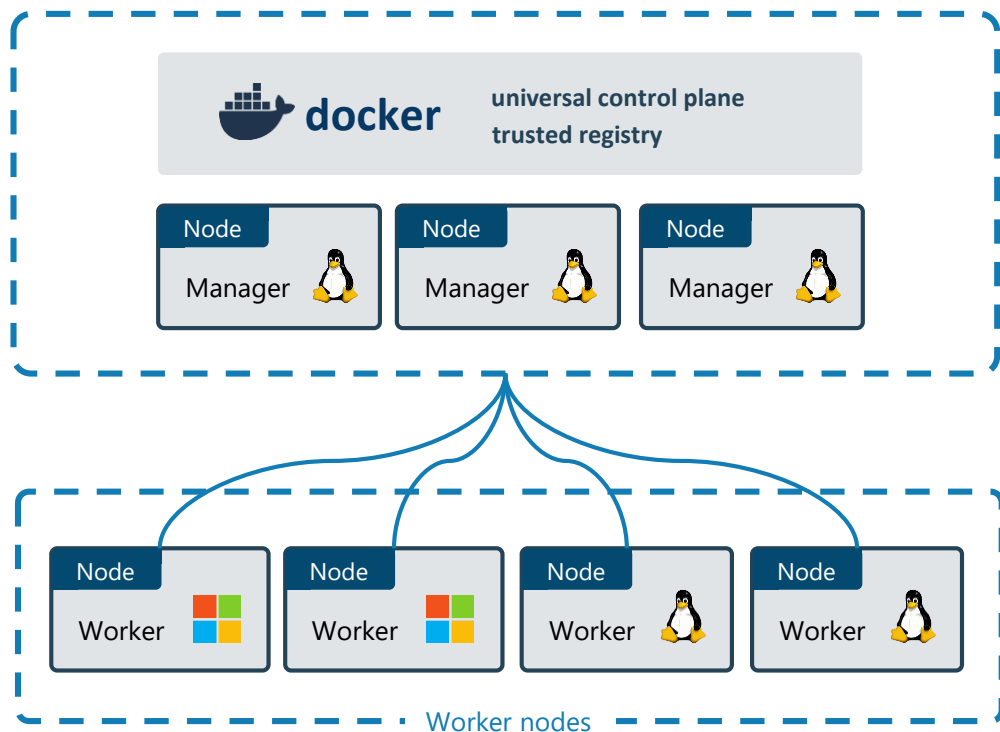
Image layers



DockerCon announcements: Microsoft contributions

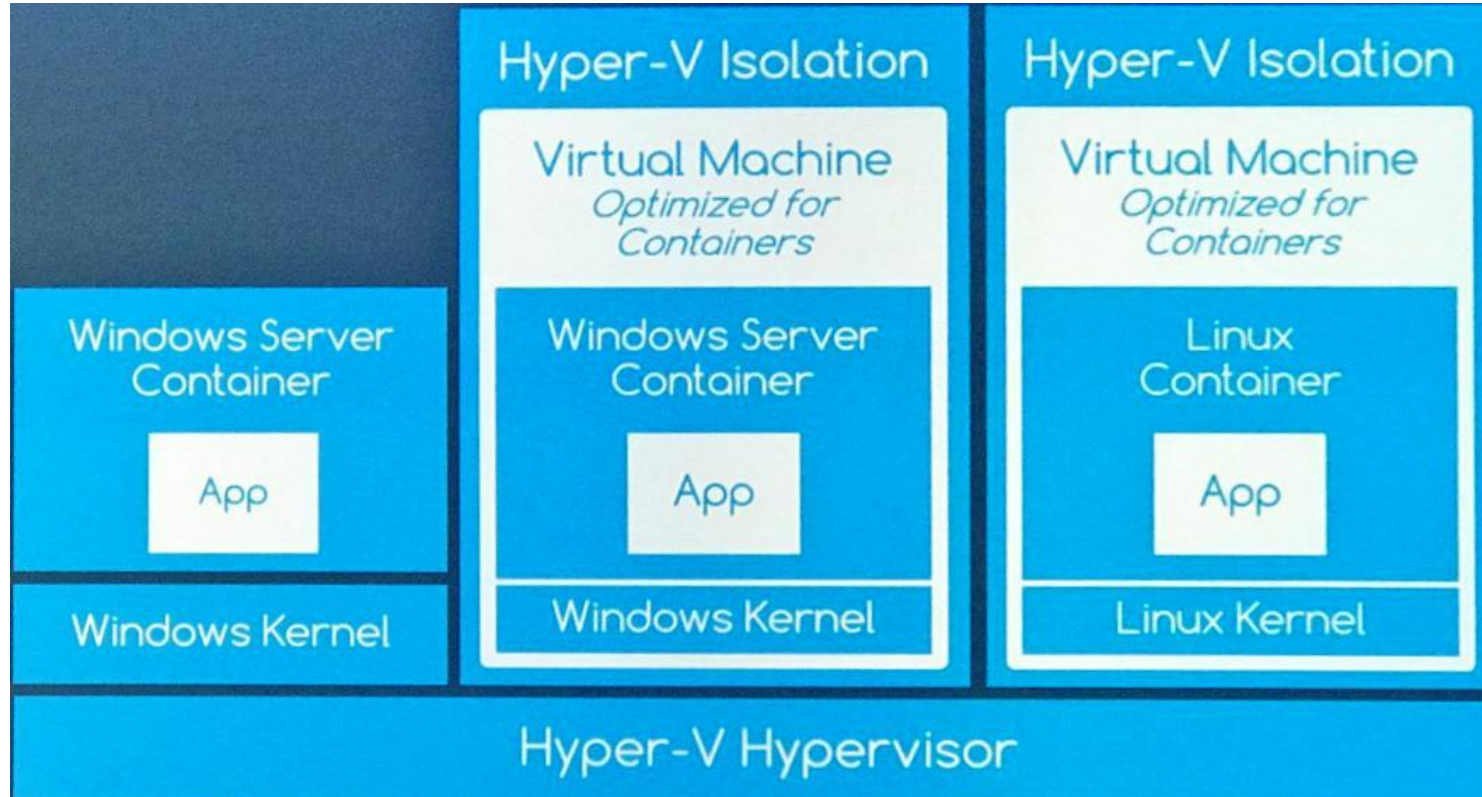
Organization	2016 Changesets
Total Independent	41.5%
Yong Tang	4.7%
Harald Albers	4.4%
Allen Sun	2.8%
Steve Durrheimer	2.7%
All others	26.9%
Docker	40.6%
Microsoft	7.7%
IBM	3.2%
Huawei	3.0%
Red Hat	3.0%
All other corporate	1.0%

DockerCon announcements: Mixed clusters



- Linux Managers
 - UCP controllers + DTR replicas
 - Authentication, Image Scanning, Signing and shared services
- Mixed Workers
 - Windows native containers on Windows nodes
 - Linux containers on Linux nodes
 - Overlay network support between Linux and Windows
- Some features not yet in Windows
 - Port Routing Mesh (HRM supported in host mode only)
 - Encrypted Networks

DockerCon announcements: Linux containers on Hyper-V

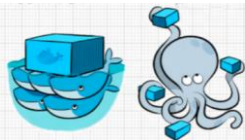


Microsoft-Docker partnership results

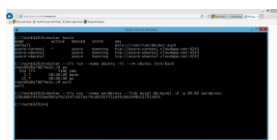
Docker extensions
in Microsoft Azure



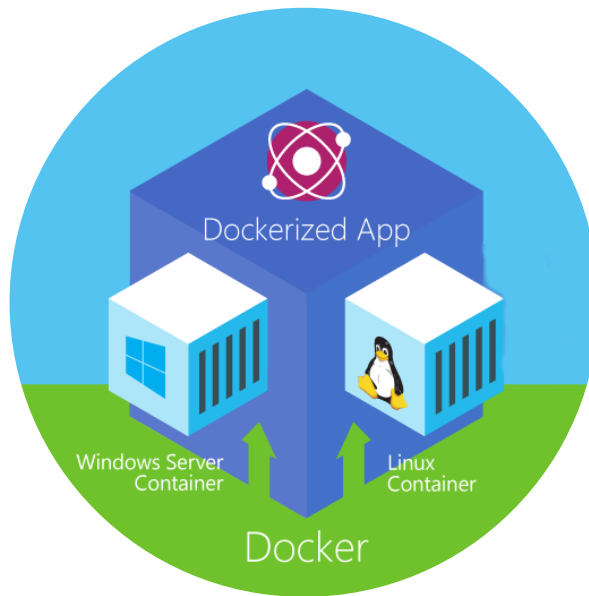
Libswarm
support



Docker client
for Windows



Docker VM
image in Azure



ASP.NET Core
Docker image



ASP.NET 5 Preview Docker Image

Orchestration
in Azure



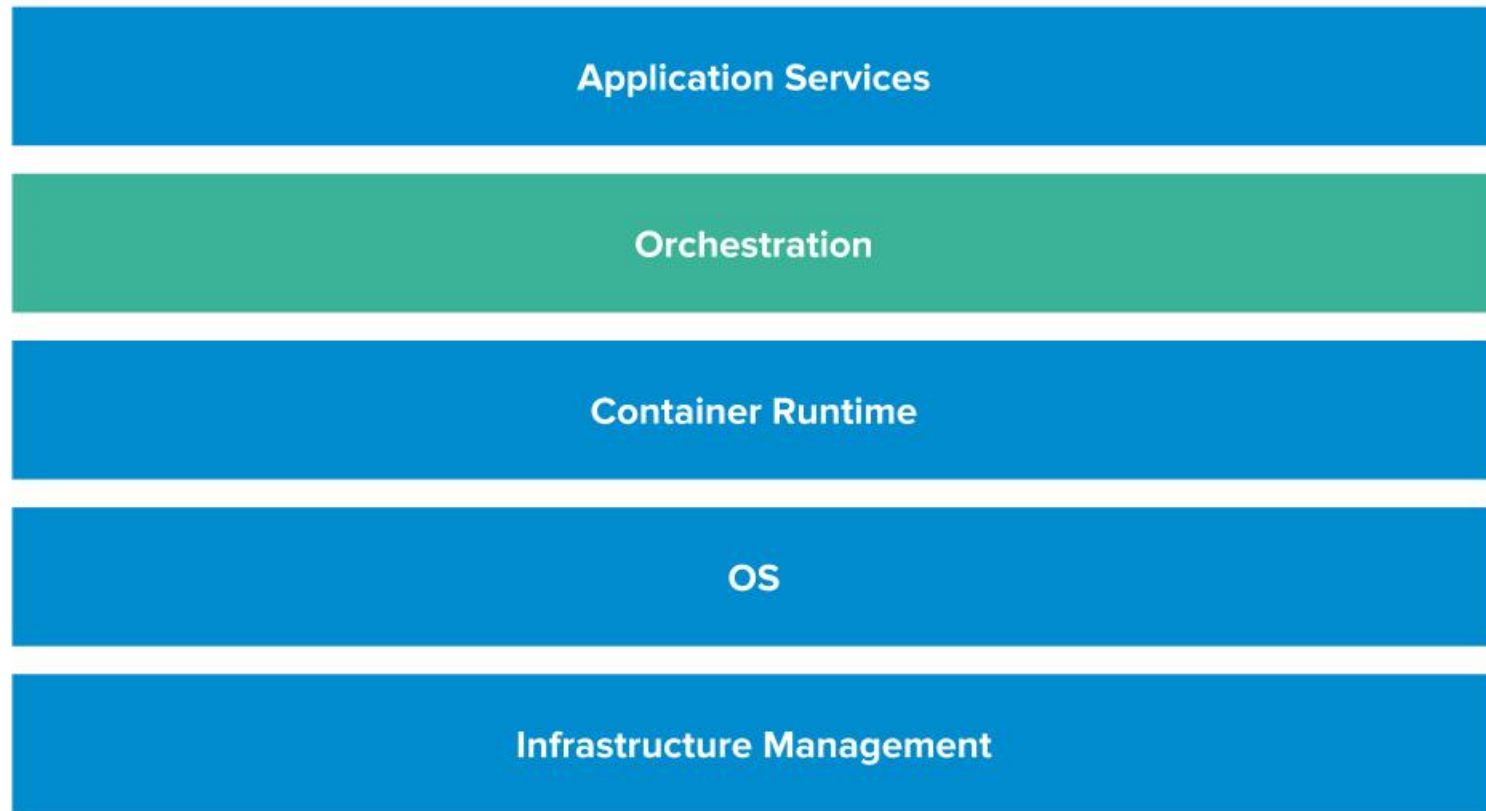
Developer
tools



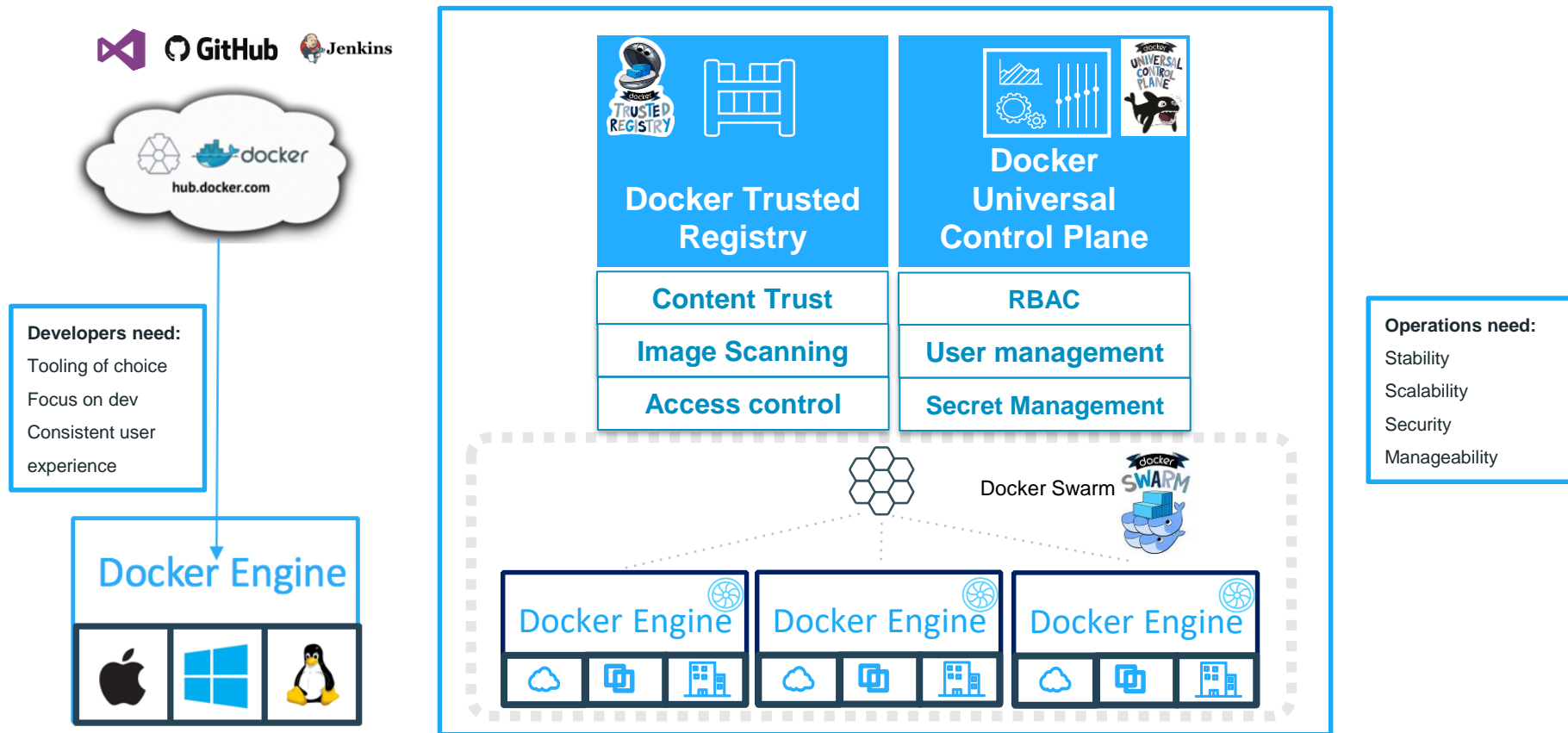
Windows Server
Containers



Orchestration is just one aspect...



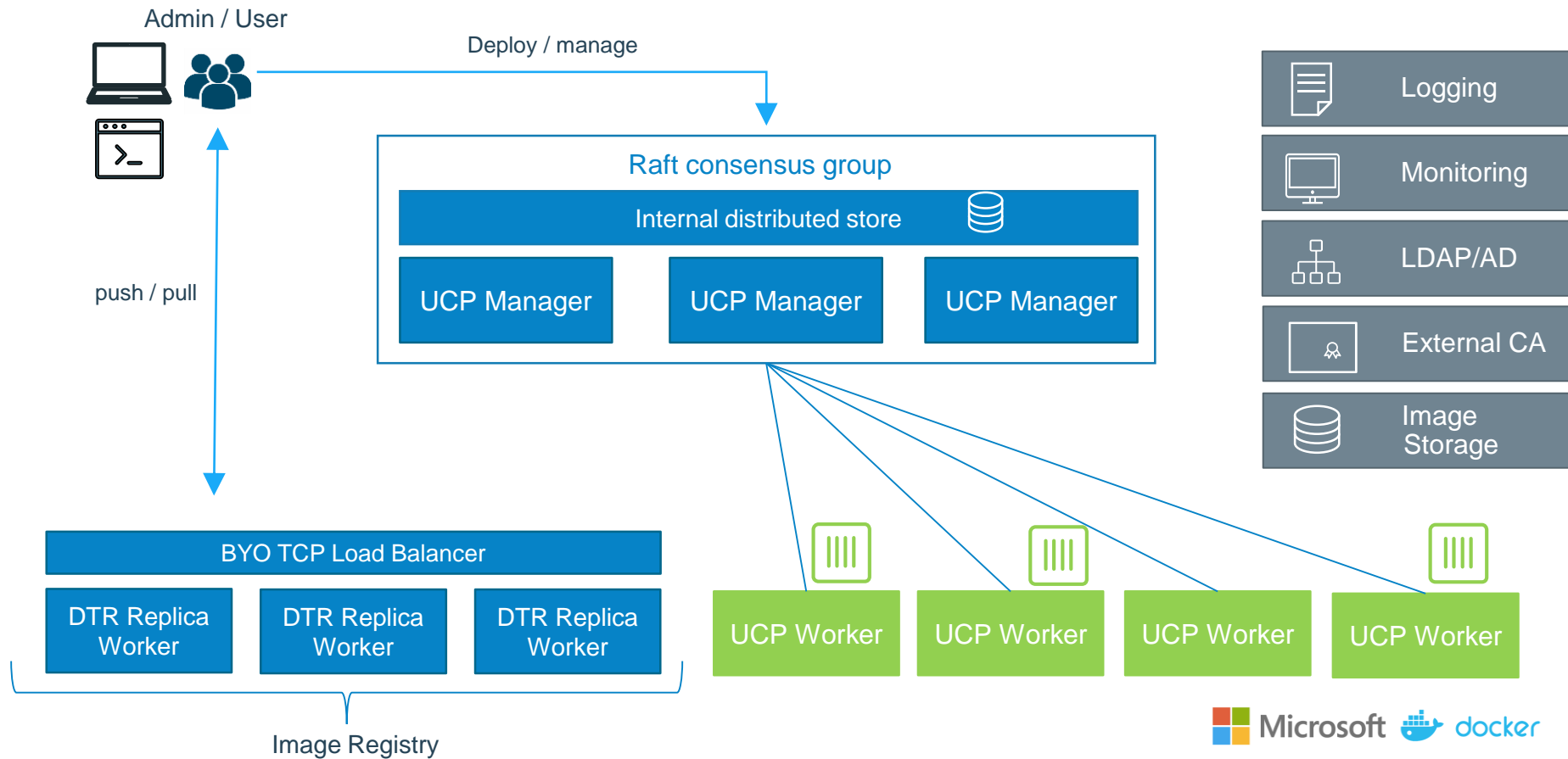
Docker Enterprise Edition for devs and ops



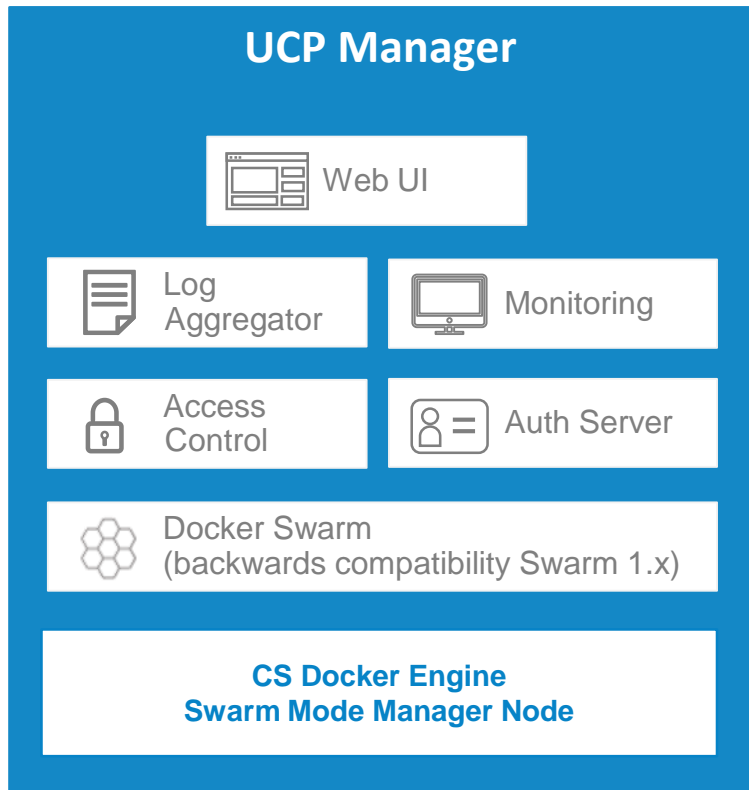
Container hosts are generic nodes



Docker EE Architecture

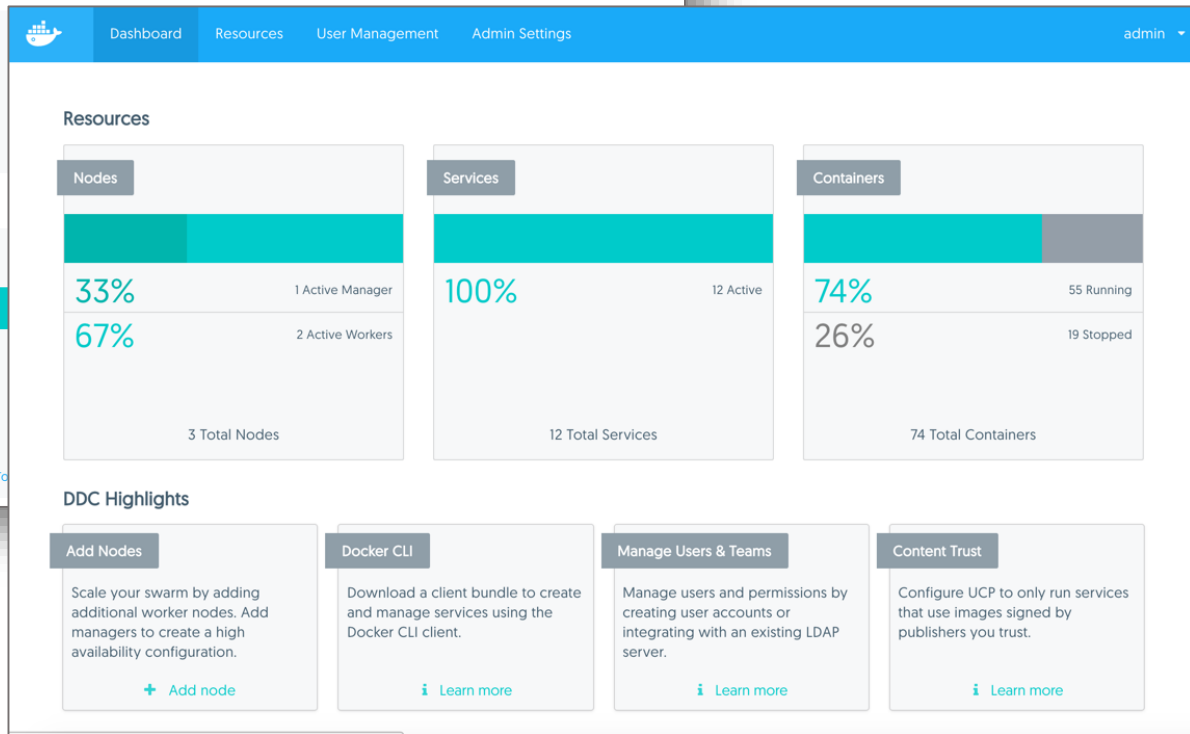
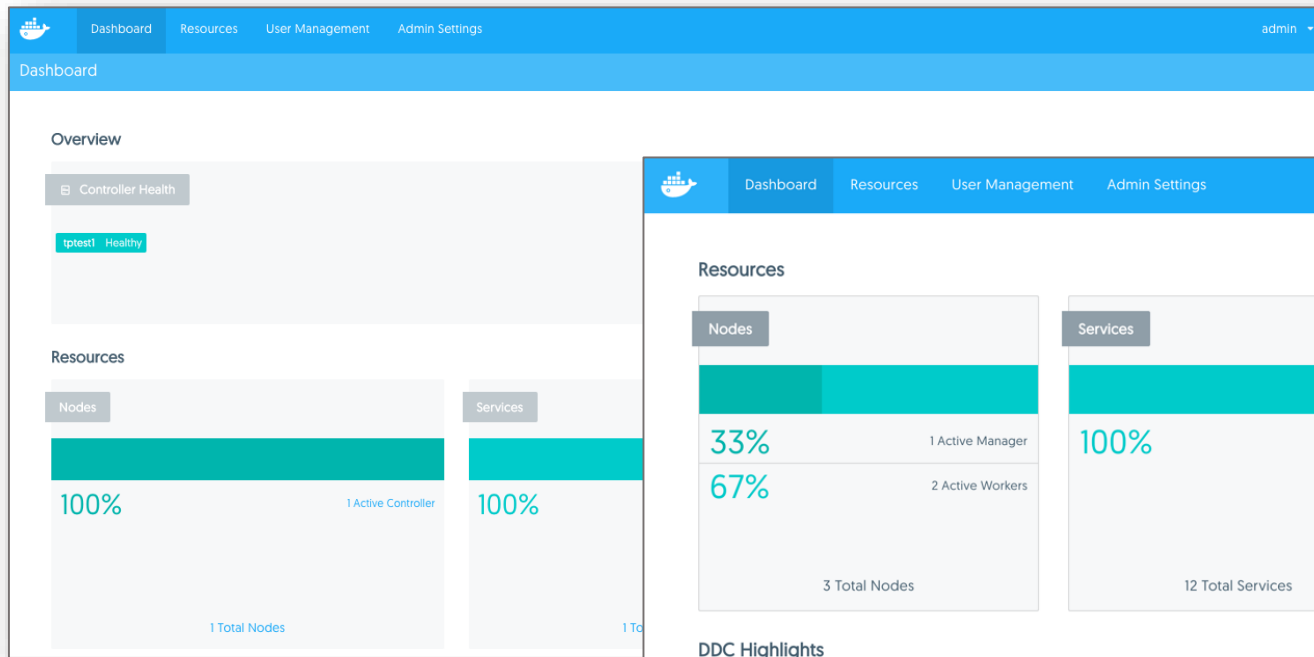


Deep Dive: UCP Manager Nodes

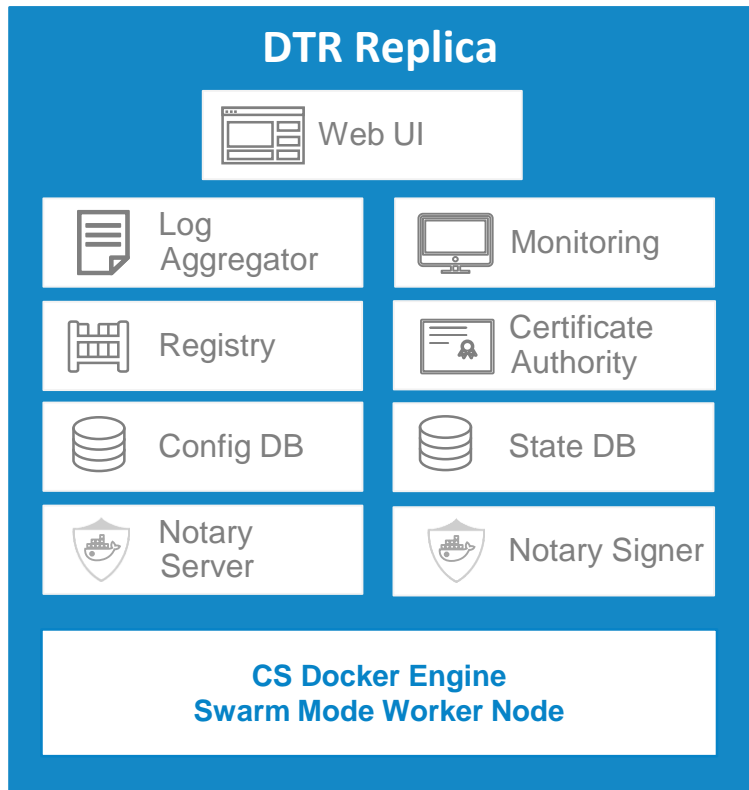


- Backwards compatibility for Swarm 1.x and simultaneous support for swarm mode
- Point and click UI to manage nodes, services, containers and networks
- CLI and API support
- Secure access control with LDAP/AD support and granular RBAC
- Content security policy

Intuitive UI to orchestrate and manage at scale

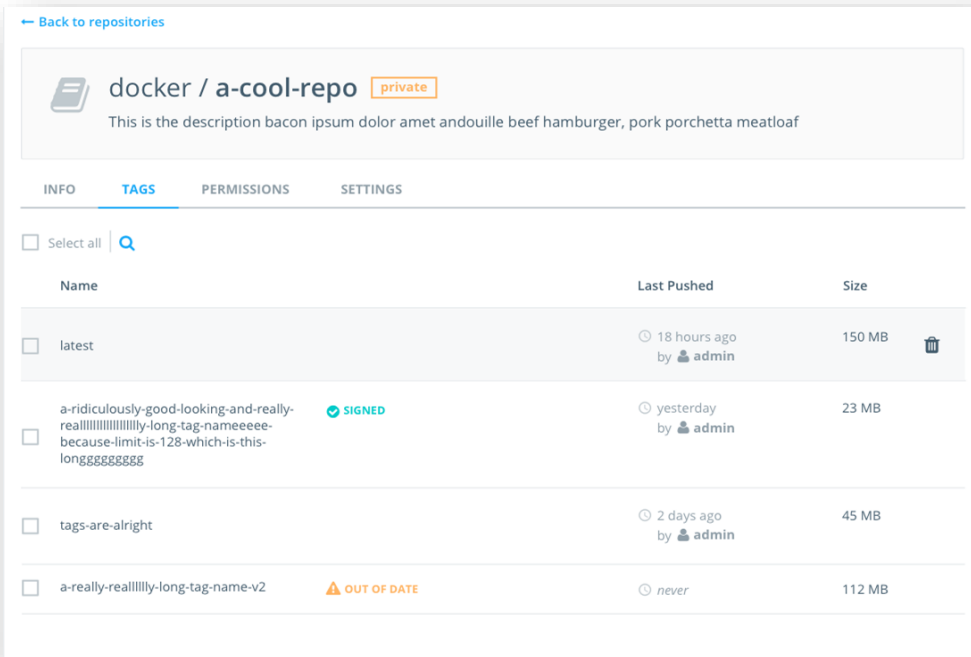


Deep Dive: DTR Replica Worker Nodes



- Point and click UI to manage repos, images and team collaboration
- Image management with labels, tag store and garbage collection
- HA and redundant system
- Content security with built in image signing and verification
- Wide variety of storage driver support for image store

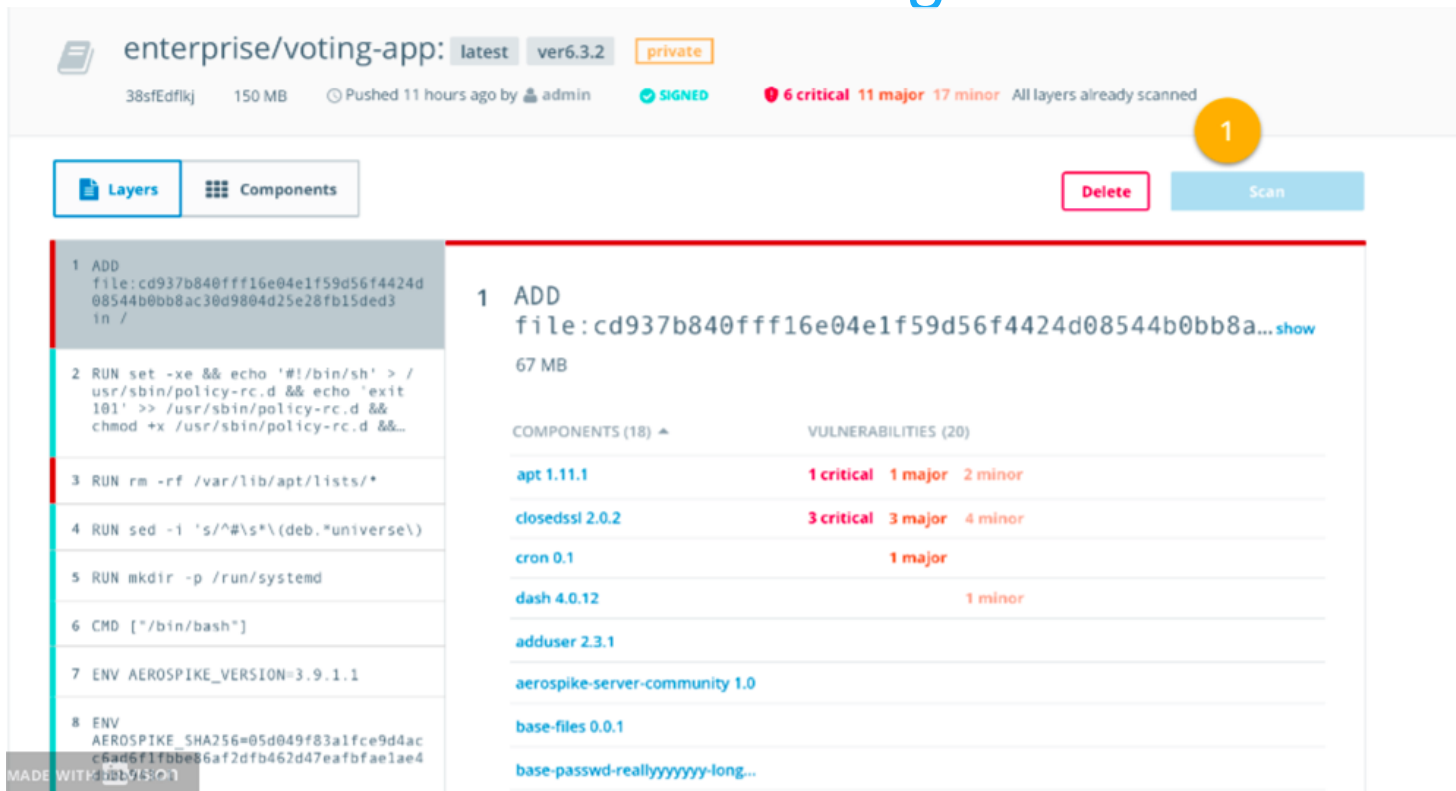
Central image management



- Search and browse repos
- RBAC by repo
 - Users, Teams, Orgs
 - Read, Read-Write, Admin
- Garbage collection
- Image tag metadata
- Integrated Content Trust

Security Scanning:

Get a full BOM for a Docker Image



The screenshot shows the Docker Hub interface for the `enterprise/voting-app` image, version `latest` (ver6.3.2), which is private. The image was pushed 11 hours ago by `admin` and is signed. It has 6 critical, 11 major, and 17 minor vulnerabilities. All layers are already scanned. A yellow circle with the number 1 is in the top right corner.

The **Layers** tab is selected, showing a list of layers. The first layer is highlighted:

- 1 ADD
file:cd937b840fff16e04e1f59d56f4424d08544b0bb8ac30d9804d25e28fb15ded3
in /

The **Components** tab is also visible, showing a list of components and their associated vulnerabilities. The components are:

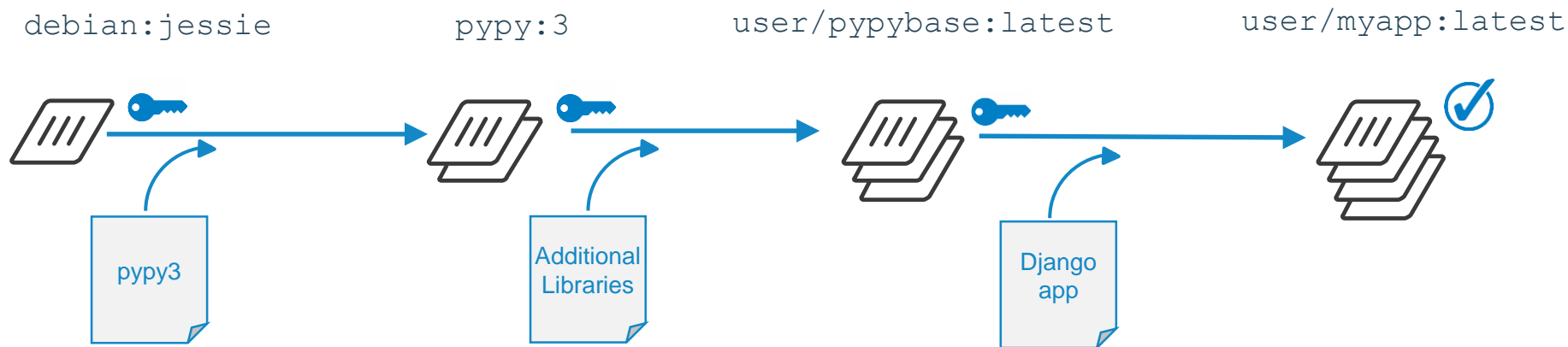
- apt 1.11.1 (1 critical, 1 major, 2 minor)
- closedsssl 2.0.2 (3 critical, 3 major, 4 minor)
- cron 0.1 (1 major)
- dash 4.0.12 (1 minor)
- adduser 2.3.1
- aerospike-server-community 1.0
- base-files 0.0.1
- base-passwd-reallyyyyyyy-long...

The **Vulnerabilities** tab is also visible, showing a list of vulnerabilities. The vulnerabilities are:

- 1 critical, 1 major, 2 minor
- 3 critical, 3 major, 4 minor
- 1 major
- 1 minor

Buttons for **Delete** and **Scan** are visible in the top right corner.

Security: Trusted image chaining



Add image layer, sign then push image to private registry
Continue until complete for a trusted chain of image layers

One platform and one journey for all applications

1

Traditional apps in containers

Gain portability, efficiency and security



2

Transform to Microservices

Look for shared services to transform



3

Accelerate New Applications

Greenfield innovation



Modernize Traditional Apps: Customer Benefits



Portable

Enable workload portability across hybrid cloud infrastructure



Secure

Reduce the attack surface area of legacy apps and gain visibility to know exactly what is running in production



Efficient

Optimize infrastructure costs and streamline operations

Gain immediate benefits without changing the app



Microsoft



docker

See you at DockerCon Europe <http://dockr.ly/CPH>

