



Docker for Windows Containers and Kubernetes



Simon Ferquel

Senior Software Engineer @ Docker

@sferquel



Carl Fischer

Senior Product Manager @ Docker

@carl_fischer





Agenda

- Docker and Windows today
- Develop for mixed clusters with Docker Desktop
- Roadmap going forward

Windows Server capabilities today

Docker Engine - Enterprise for Windows Server

- 500K downloads

Docker Enterprise workers

- Windows Server 2016, 1709, 1803
- Mixed Linux / Windows clusters

Docker Application Convertor

- Containerize legacy Windows apps

Docker Certified Infrastructure

- Install and Configure Enterprise Windows workers



Windows Desktop capabilities today

Docker Desktop for Windows

- 450K monthly users
- K8s + Linux today
- K8s + Windows in the future
- Linux Containers on Windows

Docker Desktop Enterprise

- Mass deployment
- Configuration templates and lock-in
- Version Packs



CY18 Docker Enterprise Roadmap

Version	Release Date	Engine	Features
Docker Enterprise 2.0.0	Q1 2018	17.06	Mixed Windows and Linux clusters with Windows Server 2016
Docker Enterprise 2.0.x	Q2 2018	17.06	Added Windows Server 1709, 1803 support with <ul style="list-style-type: none">• Easy image compatibility• Smaller image sizes
Docker Enterprise 2.1	Q3 2018	18.09	Added support for Windows Server 1709, 1803, 2019* with <ul style="list-style-type: none">• Ingress and VIP networking

** Due to Windows Server 2019 delays support will be delivered via a Docker Enterprise 2.1 patch release*



State of the K8s + Windows world

Community GA target: K8s 1.14, ~ March 2019

Challenges with initial GA

- Running on current infrastructures
 - Requires Server 2019
- Running the majority of legacy .NET apps
 - Lack of gMSA credential handling

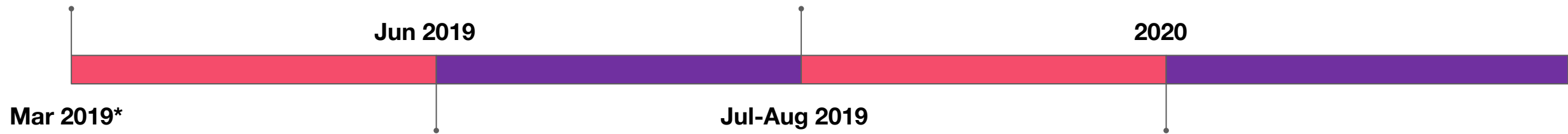
K8s + Server 2008 EoL Migration

K8s project GA for Windows

Pure upstream open-source

POCs start on K8s + Win

“First Project” phase begins



Products add K8s + Win support

This will basically be their 1.0 release of Windows support of any kind

Windows 2008 EOL...

How many legacy apps can be migrated to K8s by then ?

* Estimated

Docker Enterprise provides options

Swarm support today for

- Windows Server 2016+
- gMSA container authentication

Seamless migration of workloads between Swarm and K8s with
Compose on Kubernetes

Start legacy migration now without having to wait for K8s Windows GA

A Journey to Kubernetes + Windows



Work in progress

Docker for Desktop

- Prototype @ Microsoft Ignite 2018
- Compose support @ DockerCon EU
- GA: CY19 (on Edge)

Docker Enterprise

- Early prototype

A vibrant, stylized map of Barcelona, Spain, rendered in a flat, illustrative style. The map is set against a light orange background with white lines representing the city's street grid. Various landmarks and buildings are depicted in bright colors, including the Sagrada Família, the Guggenheim Museum, the Picasso Museum, the Palau Nacional, the Casa Batlló, the Casa Milà, the Torre Agbar, the Torre de Collserola, the Port of Barcelona, and the Barceloneta beach. People are shown walking, cycling, and playing sports throughout the city, adding a sense of life and movement to the map. The overall aesthetic is modern and artistic, capturing the essence of Barcelona's urban landscape and cultural heritage.

Docker Desktop with Mixed Kubernetes

Leverage existing architecture

- Master node running on LinuxKit VM
- Windows host as a Worker node

Networking

- Configurable Services and Pods CIDRs
- Custom CNI driver on the Windows Side

Mixed clusters & mixed workloads

- All PODs should have a node affinity
- Persistent Volume Claims might require different options

```
affinity:  
nodeAffinity:  
  requiredDuringSchedulingIgnoredDuringExecution:  
    nodeSelectorTerms:  
      - matchExpressions:  
        - key: beta.kubernetes.io/os  
          operator: In  
          values:  
            - windows  
        - key: beta.kubernetes.io/arch  
          operator: In  
          values:  
            - amd64
```

Compose on Kubernetes

Swarm-style placement work
“as is”

```
win-service:  
  image: aspNet-service  
  deploy:  
    placement:  
      constraints:  
        - "node.platform.os == windows"  
linux-service:  
  image: aspNet-service  
  deploy:  
    placement:  
      constraints:  
        - "node.platform.os == linux"
```


Demo: Docker Desktop with Mixed Kubernetes

A vibrant, stylized map of Barcelona, Spain, rendered in a flat, illustrative style. The map is set against a light orange background with white lines representing the city's street grid. Various landmarks and buildings are depicted in bright colors, including the Sagrada Família, the Guggenheim Museum, the Picasso Museum, the Casa Batlló, the Casa Milà, the Torre Agbar, the Port of Barcelona, and the Barceloneta beach. People are shown walking, cycling, and playing sports throughout the city, adding a sense of life and activity to the map. The overall aesthetic is modern and artistic, capturing the essence of Barcelona's urban landscape and cultural heritage.

Docker + Microsoft Roadmap

Q1 2019

- Expanded platform support via Server 2019 / Swarm

Next Docker Enterprise release

- K8s Windows workers
- Improved gMSA UX and security

Windows Futures

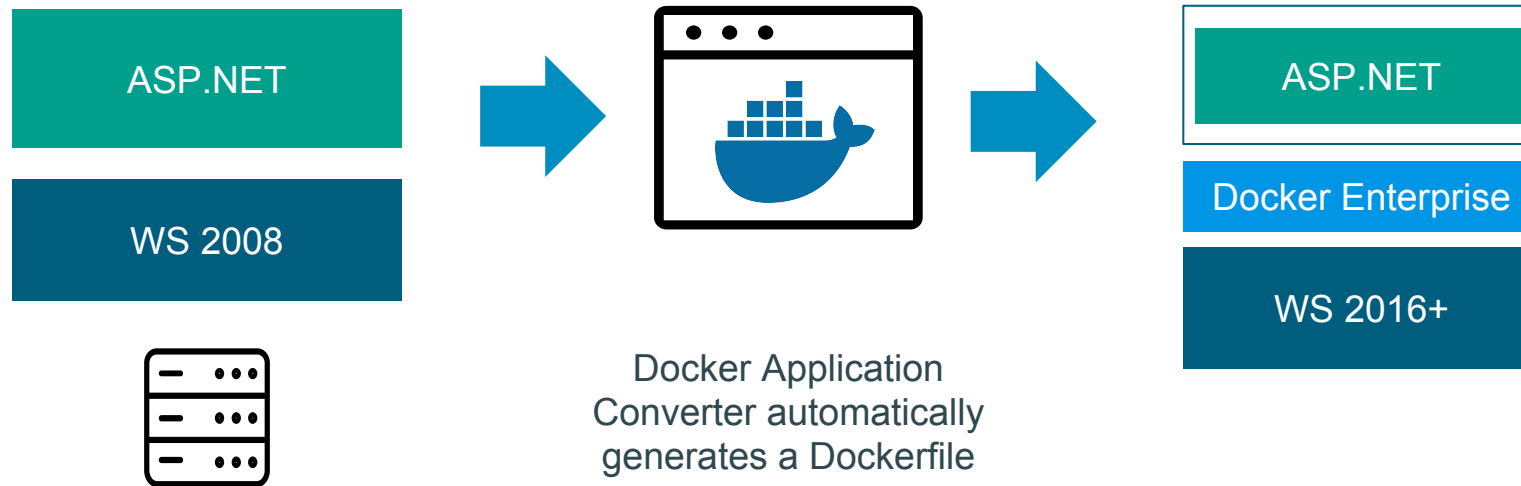
- Windows platform gMSA improvements

Wrap Up

- Docker has wide support for Windows today
- We are actively prototyping a developer experience for mixed Linux and Windows Kubernetes workloads
- Docker Enterprise support for Kubernetes Windows workers is coming
- Compose on Kubernetes will enable seamless migration from Swarm to Kubernetes when available

Windows Server Migration Program

Advisory & implementation services to help you plan and migrate your legacy Windows Server application portfolio



<https://dockr.ly/WindowsServerUpgrade>

Migrate Legacy Windows Before End of Support

For more information visit:

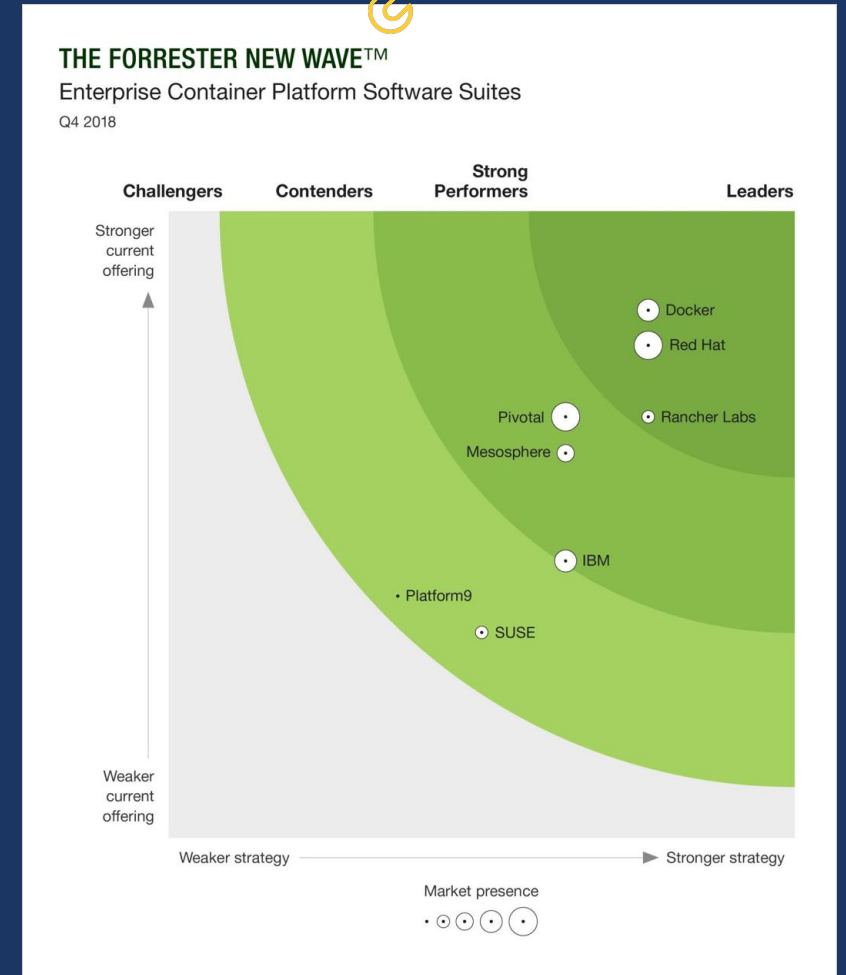
<https://dockr.ly/WindowsServerUpgrade>



Get the Forrester Report on Container Platforms

For more information visit:

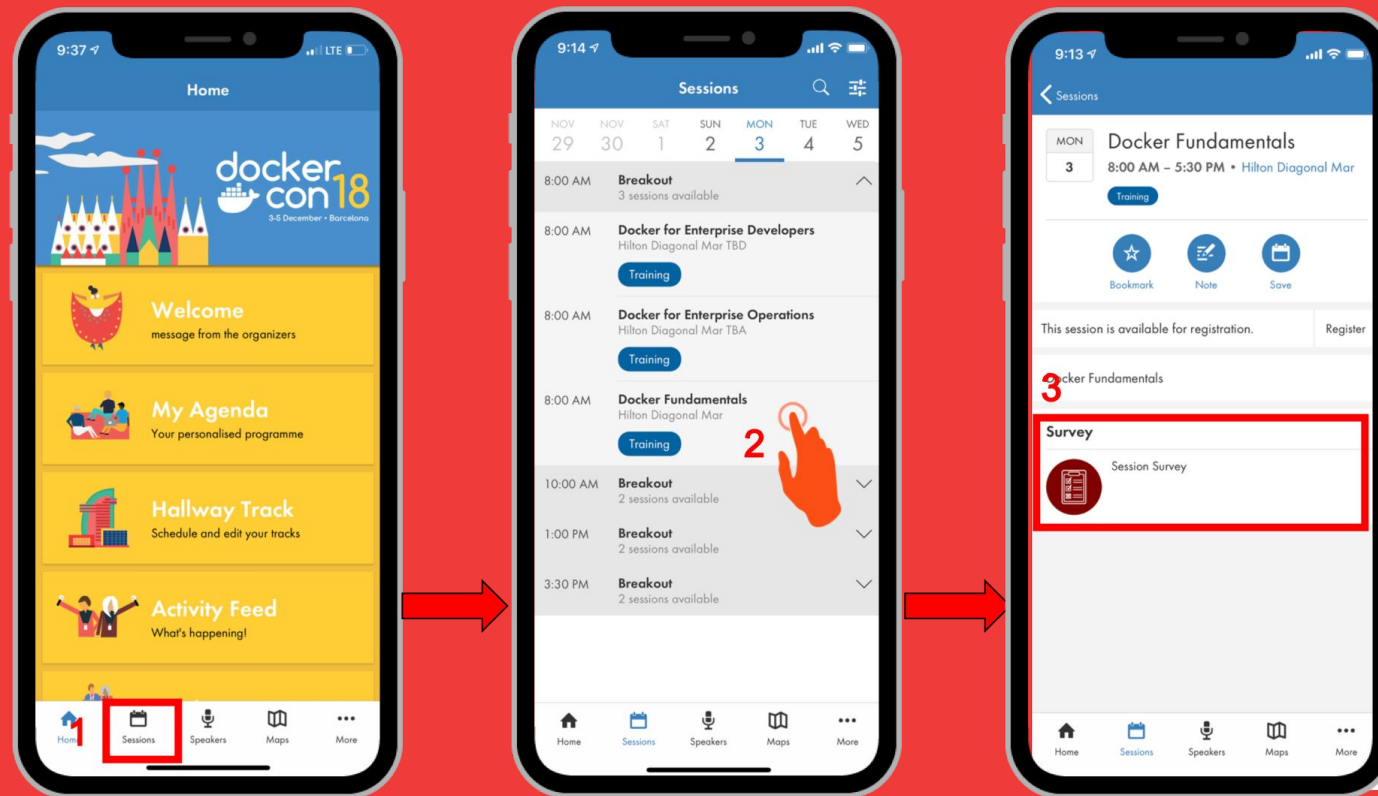
<https://dockr.ly/Forrester>



Take A Breakout Survey

Access your session and/or workshop surveys for the conference at any time by tapping the Sessions link on the navigation menu or block on the home screen.

Find the session/workshop you attended and tap on it to view the session details. On this page, you will find a link to the survey.





Questions?