

Workshop

# Container

In The MS Universe



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**time cockpit**  
Saves the day.

# Your Host

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# Questions for this Session

Options, options, options

When to use what?

Demos, demos, demos

See things in action

Overview, not a deep-dive

# Overview

Available Options and Tools

# Microsoft Containers

## Docker client on Windows

In Windows shell

In Bash shell ([Bash on Ubuntu on Windows](#))

# Demo

Docker Client

Docker Client in  
Windows Shell

Ubuntu subsystem for  
Windows

Not Docker, not Hyper-V  
Pico processes

Bash on Ubuntu on  
Windows

Advantage: [Completion](#)

# Microsoft Containers

## Docker client on Windows

In Windows shell

In Bash shell ([Bash on Ubuntu on Windows](#))

## Linux containers on Windows

[Docker for Windows](#)

## Windows containers on Windows

[Windows Server containers](#)

[Hyper-V containers](#)

Docker support on Windows Server 2016 and [Windows 10](#)

# Microsoft Containers

## Ready-made containers

For Linux and Windows

See [Docker Hub](#) (e.g. [Azure CLI](#), [.NET Core](#), [PowerShell](#), [IIS](#))

## Containers on Azure

Templates (e.g. [Docker on Ubuntu](#)) and drivers from Microsoft (details later)

[Docker Machine](#) with [Azure driver](#)

Run clusters (DC/OS, Docker Swarm, Kubernetes) with [Azure Container Service](#)

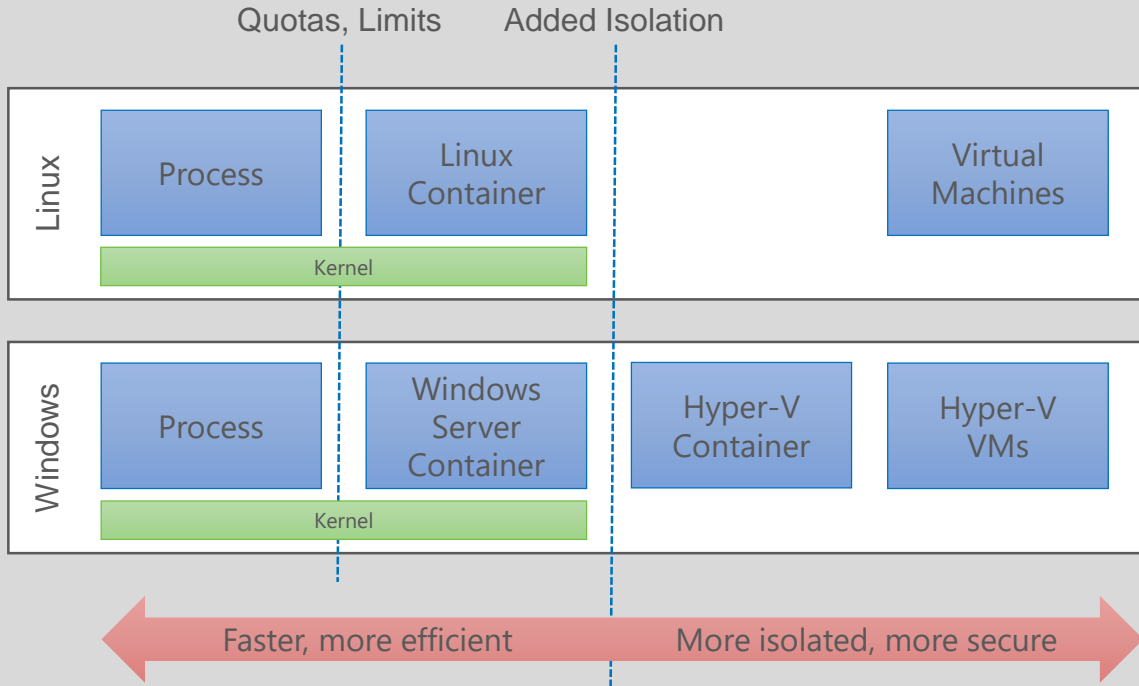
## Visual Studio Support

[Visual Studio Tools for Docker](#)

[VSTS Docker Extension](#)



# Strengths and Limits



## Windows Server vs. Hyper-V Containers

Managed almost identically  
(Docker and PowerShell)

Difference: Isolation level

More details in [MSDN](#)

## Version Compatibility

Server Containers: Must match

Hyper-V Containers: Need not  
match

Source: Mark Fussell (Microsoft), Azure Service Fabric -  
Build always-on, hyper-scalable, microservice-based cloud  
applications

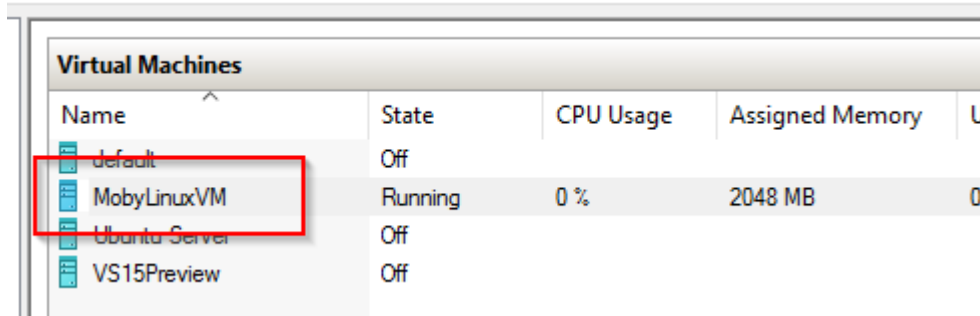
# Linux on Windows

Running Linux containers on Windows

# Linux on Windows

## Use Docker for Windows

Uses Hyper-V to run Linux with Docker



Virtual Machines				
Name	State	CPU Usage	Assigned Memory	U
default	Off			
MobyLinuxVM	Running	0 %	2048 MB	0
Ubuntu Server	Off			
VS15Preview	Off			

Run Docker client on Windows or Linux

# Demo

## Docker for Windows

### Docker for Windows UI

- Settings

- VM in Hyper-V

### Container scenarios

- Interactive container

- Volume mapping

- Port mapping

### Microsoft-provide image

- .NET on Linux

# Windows on Windows

Running Windows containers on Windows

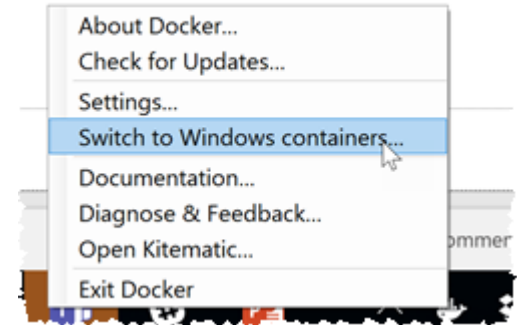
# Windows on Windows

## OS Support

Windows Server 2016

Windows 10 (Hyper-V Container)

Nice integration with Docker for Windows on Windows 10



## Windows Server Container

## Hyper-V Container

Additional isolation layer

Runs inside of Windows Nano Server VM

```
docker run -it --rm --isolation=hyperv microsoft/nanoserver
```

# Demo

## Windows Container

### Docker on Windows 10

Nano Server

### Docker on Windows Server 2016

Full Server

Nano Server

Remote Docker (Linux and  
Windows) client

### Container scenarios

Interactive container

[Dockerfiles on Windows](#)

Volume mapping

Ready-made container (.NET)

# Windows on Windows

## Configuration via *daemon.json*

Details see [Microsoft docs](#)

## Support for Dockerfiles

Windows shell

Powershell support

Details see [Microsoft docs](#)

## Swarm-support is coming

Available to Windows 10 insiders already

Details see [blog post](#)

## PowerShell for Docker

Alternative to Docker CLI



# Docker on Azure

Running containers in Azure

# Docker on Azure

## Docker support in *Azure Resource Manager* (ARM)

[Extension for Docker on Linux](#)

[Ready-made ARM-templates](#) (e.g. [Docker on Ubuntu](#))

## Azure driver for *Docker Machine*

## Azure Container Services (ACS)

## Storage

[Docker Volume Driver for Azure File Storage](#)

# Demo

## Containers in Azure

Docker Machine

Azure Driver

ARM with Docker

Using Quickstart Template

Volume driver for Files

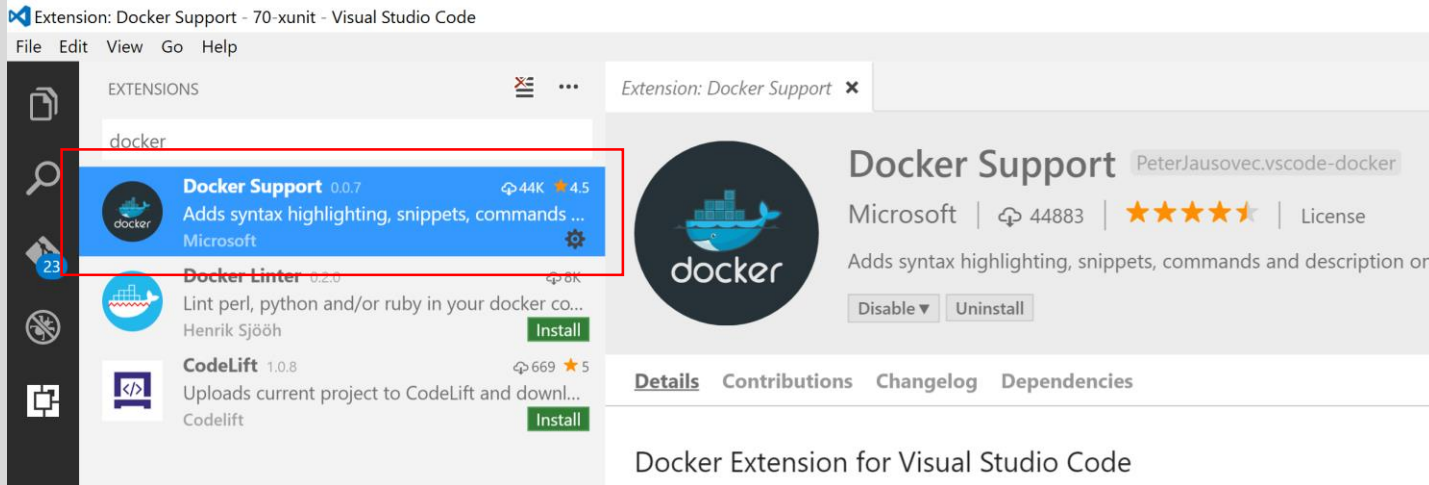
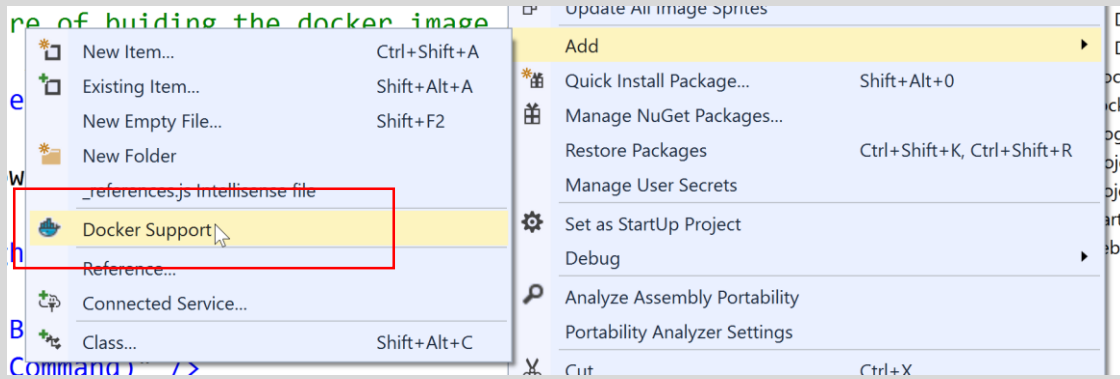
# Developer Tools

Visual Studio support

# Visual Studio

## Docker Tools for Visual Studio

Docker support for Visual Studio Code



# TFS/VSTS

## Docker extensions for TFS/VSTS

The screenshot shows the Visual Studio Marketplace interface. The top navigation bar includes 'Visual Studio', 'Visual Studio Team Services' (highlighted in pink), and 'Visual Studio Code'. A search bar contains the text 'docker'. Below the search bar, it says '3 Results' and 'Showing: Build'. Three extension cards are displayed. The first two cards, 'Docker Integration' by Microsoft and 'Docker build task' by Lambda3, are enclosed in a red rectangular box. The third card, 'Container Security' by Aqua Security, is not boxed. Each card shows the Docker logo, the extension name, the publisher, download count, a brief description, a star rating, and a price/status label.

Extension Name	Publisher	Downloads	Description	Rating	Status
Docker Integration	Microsoft	1.2K	Build, push, run or deploy Docker images and multi-container Docker applications.	4 stars	FREE
Docker build task	Lambda3	141	Adds a build task that enables Docker actions.	5 stars	PREVIEW
Container Security	Aqua Security	32	Vulnerability scanner for container images	5 stars	PREVIEW

# Summary

# Summary

## Microsoft ♥ Linux and containers

Linux on Windows

Windows on Windows

All kinds of containers on Azure

## For dev/test and prod

Containers on Windows 10 for devs

Windows Server 2016 for Windows prod

Azure Container Service for Linux prod



## Workshop

# Q&A

Thank you for attending!



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