About Me…

Peter De Tender – MCT, Azure MVP

- CEO and Lead Technical Trainer of 007FFFLearning.com, +20 years IT experience, mainly datacenters and Microsoft Infrastructure background
- Full-time in Azure since 2013 (Readiness & Architect)
- Azure Advisor, Azure Certified Architect
- Technical Writer, Book author, Courseware Creator
- Living in Belgium, but traveling worldwide 90% of my time, helping larger Microsoft Partners, customers and Microsoft FTEs in learning about and using Azure, by providing workshops with passion

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Setting the scene

Overview of the workshop

About the workshop content…

About:

In this workshop, you will learn how to build a proof of concept (POC) that will transform an existing ASP.NET-based Web application to a container-based application. This POC will deliver a multi-tiered web app solution from a Virtual Machine architecture into Azure, leveraging Azure WebApps and different Azure container solutions available today. You will also migrate the underlying database from a SQL 2014 Virtual Machine architecture to SQL Azure. Easter Bonus: Every now and then, we will showcase similar steps using a Node.JS and MongoDB, migrating to Azure Web Apps, Containers and CosmosDB.

At the end of this workshop, you will have a good understanding of container concepts, Docker architecture and operations, Azure Container Services, Azure Kubernetes Services and SQL Azure PaaS solutioning.

Target Audience:

The workshop is targeted to Cloud Architects, Cloud Solution designers, developers and IT sysadmins, CIO's, CTO's and anybody else who is interested in learning about Azure, containers, application cloud migration and digital transformation.

Focus of the workshop (40%) is getting hands-on experience, complemented with presentations and whiteboard sessions (if in-person delivery).

Time Estimate:

16 hours (+/- 10 hours presentations, 6 hours of optional hands-on labs for attendees)

Workshop Agenda - Presentations

What we will talk about…

- Module 1: Digital App Transformation with Azure
- Module 2: Infrastructure as Code using ARM templates
- Module 3: Azure Database Solutions – SQL Azure
- Module 4: Azure App Services – Azure Web Apps (.NET + Node.JS)
- Module 5: Introduction to Docker
- Module 6: Deploying Azure Container Registry / Azure Container Instance
- Module 7: Migrating Apps to Azure Container Services / Kubernetes Services
- Module 8: ACS / AKS Management and Monitoring

Workshop Agenda – Hands-On-Labs

Learn by doing…

- **Module 2: Infrastructure as Code using ARM templates**
  - **Lab 1:** Setup your Azure subscription and deploy the source Virtual Machine environment with Visual Studio 2017
- **Module 3: Azure Database Solutions – SQL Azure**
  - **Lab 2:** Migrating a SQL VM database to SQL Azure using SQL Management Studio
- **Module 4: Azure App Services – Azure Web Apps**
  - **Lab 3:** Migrating your legacy ASP.NET application to Azure Web Apps with Visual Studio 2017
  - Easter Egg Bonus: Deploying a Node.JS app with MongoDB / CosmosDB
- **Module 5: Introduction to Docker**
  - **Lab 4:** Containerizing your legacy ASP.NET application with Docker CE for Windows

Workshop Agenda – Hands-On-Labs

Learn by doing…

- **Module 6: Deploying Azure Container Registry / Azure Container Instance**
  - **Lab 5:** Using Azure Container Registry, Azure Container Instance
- **Module 7: Migrating Apps to Azure Container Services / Kubernetes Services**
  - **Lab 6:** Deploying Azure Container Services with Kubernetes and running Pods
  - **Lab 7:** Deploying Azure Kubernetes Services
- **Module 8: ACS / AKS Monitoring and Operations**
  - **Lab 8:** Integrating ACS monitoring with Azure Monitor and Deploying Kubernetes Dashboard

Node.JS and Cosmos DB labs are available on request

Technical Requirements

What you need…

<Could vary based on the actual delivery-method>, but overall:

- Client workstation running recent Windows, Linux or Mac OS and latest internet browser
- Access to ports 80 (HTTP), 443 (HTTPS) and 3389 (Remote Desktop)
- Full Azure subscription (MSDN, AzurePass, Paid subscription, AE, CSP,…)

- Lab consumption estimate: $15-35 (when shutdown all resources)

Questions and HOL support

msdevseriessupport@007FFFLearning.com

Subject: Azure Developer Series – Containers

Response Time: within 4-8 hours

Check GitHub for FAQ and Updates:
http://www.github.com/007FFFLearning/MSDevSeriesSupport

Microsoft

Azure

Application Migration

Azure Container Registry | Azure Container Instance

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Key Objectives

What you will learn in this section

- Azure Container Registry
- Azure Container Instance
- Azure WebApps for Containers

Microsoft

Azure

ACR - ACI

Easy way to store and run your containers in Azure

Introduction to ACR

Where do Docker Images come from?

Docker Hub

- Hub.docker.com
- Free resource of PUBLIC images
- Option to create PRIVATE images

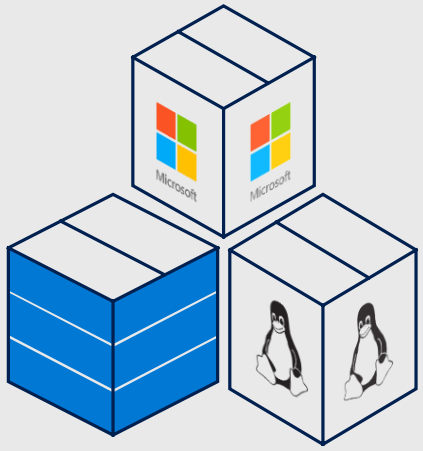
Docker Hub

Cloud Container Registry

- Library of Docker Images
- Azure Container Registry
- Mainly used for storing PRIVATE images

Azure Container Registry

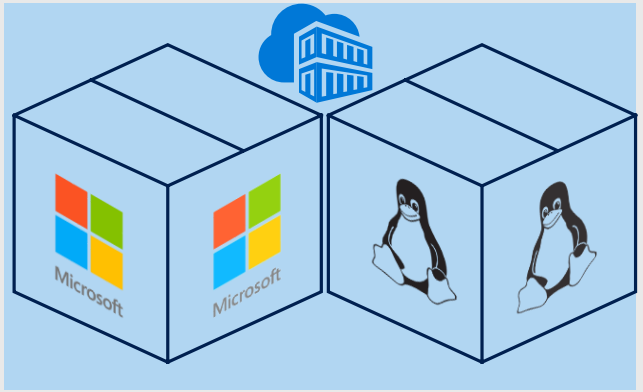
Container LifeCycle in Azure



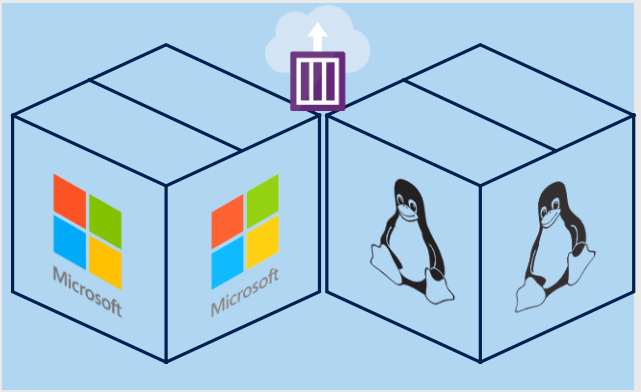
Container Image
Windows or Linux

Run
in Azure

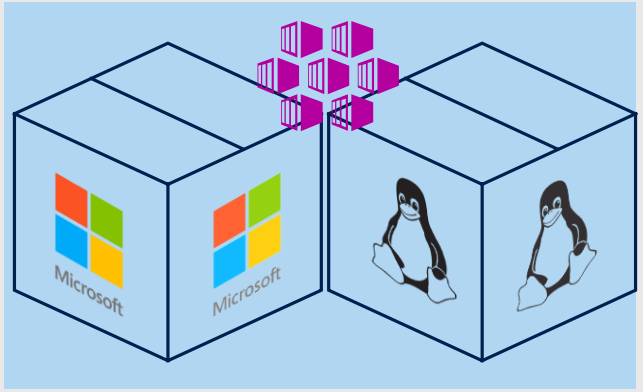
Azure Container Registry



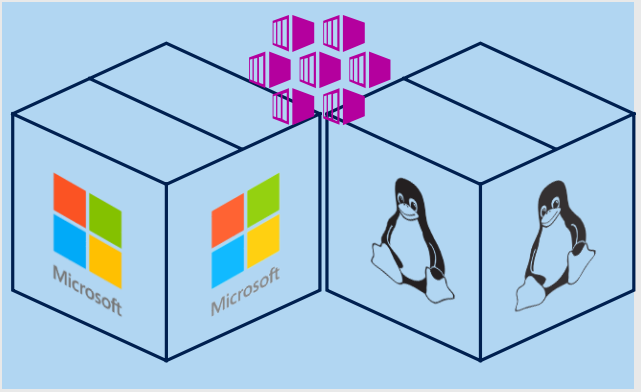
Azure Container Instance



Azure Container Services (ACS)



Azure Kubernetes Service (AKS)

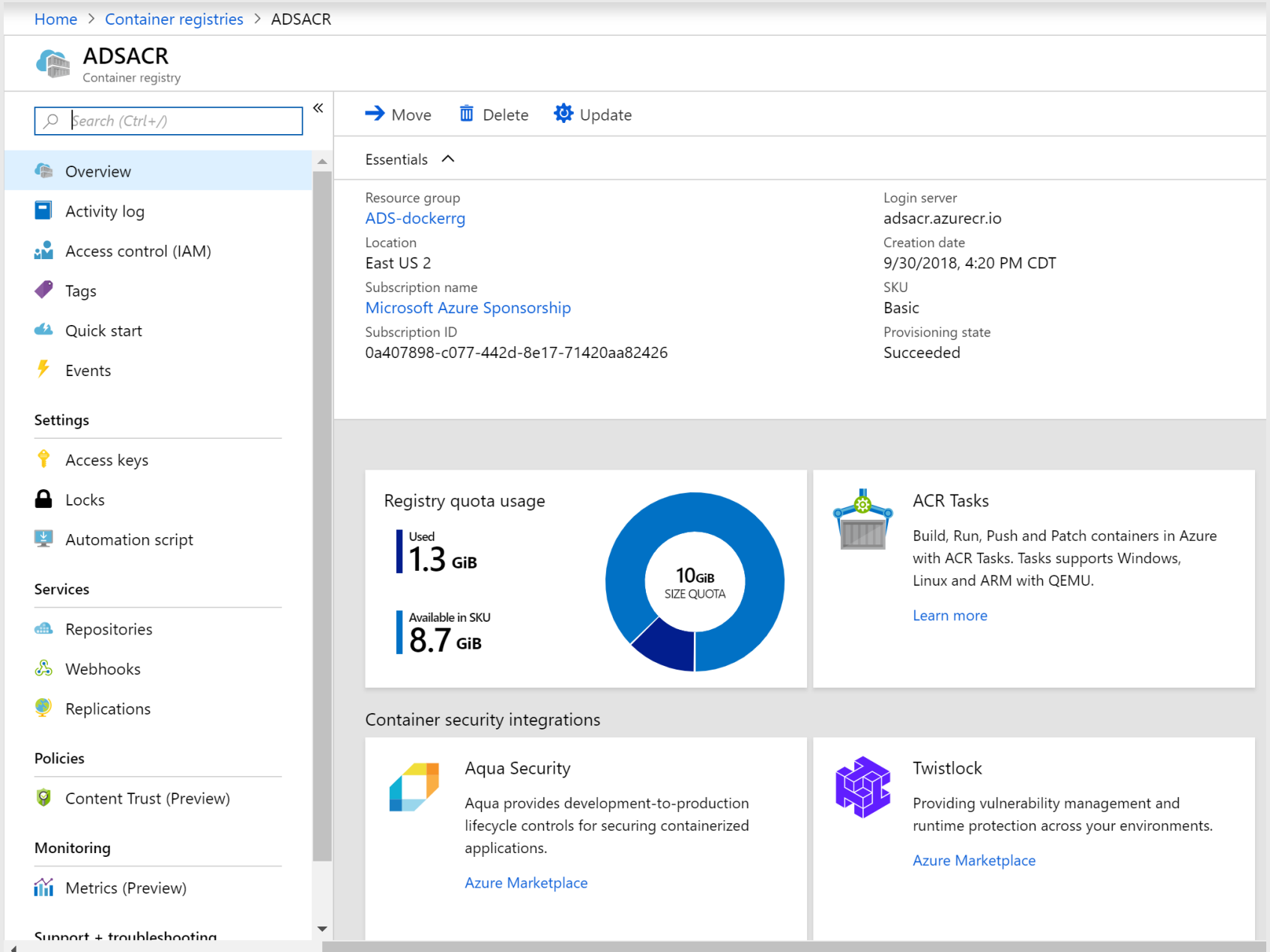


Azure Container Registry (ACR)

Azure Container Registry is a managed Docker registry service based on the open-source Docker Registry 2.0. Create and maintain Azure container registries to store and manage your private Docker container images.

- **Pull images from ACR and use it in different deployment targets:**
  - Kubernetes | DC/OS | Swarm
  - Azure compute solutions
- **3 different SKU's:**
  - Basic
  - Standard
  - Premium

Azure Container Registry (ACR)



Similar to the public Docker Hub, but running within an Azure Subscription, offering Private images

Azure Container Registry (ACR)

Automating OS and Framework Patching

Registry

Registryname.azurecr.io
namespace

Image

Read-only snapshop of a
Docker Container

Repository

Groups of Container
Images

Container

Software application in a
bundled file system

Azure Container Registry (ACR)

3 different SKUs to choose from

Basic	Standard	Premium
Cost optimized entry-point for developers	Sufficient for most production workloads	For the enterprise-use of containerized apps
Same capabilities than Standard and Premium, but limitations on size and usage	Increased storage limits and image througput	Higher offerings on storage, concurrent operations and high-volume scenarios
		Geo-Replication for managing a single registry across multiple regions

Azure Container Registry Tasks

Cloud-based container building, including OS updates and patching

- Quick Tasks – container lifecycle management
- Trigger container image build when updates happen to Git Repo
- Automate OS and Framework patching (base image)
- Automatically rebuild application images (app image)
- Multi-Step Tasks (preview)

Demo

Deploying an Azure Container Registry

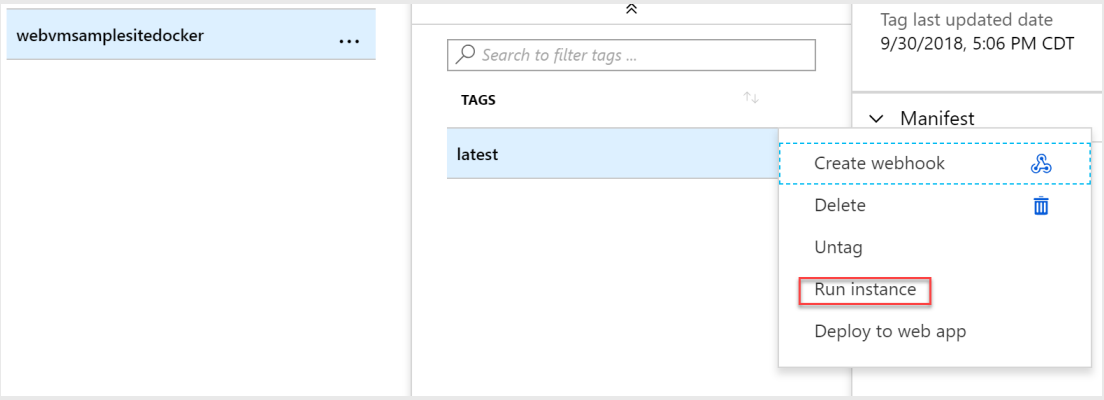
Azure Container Instance

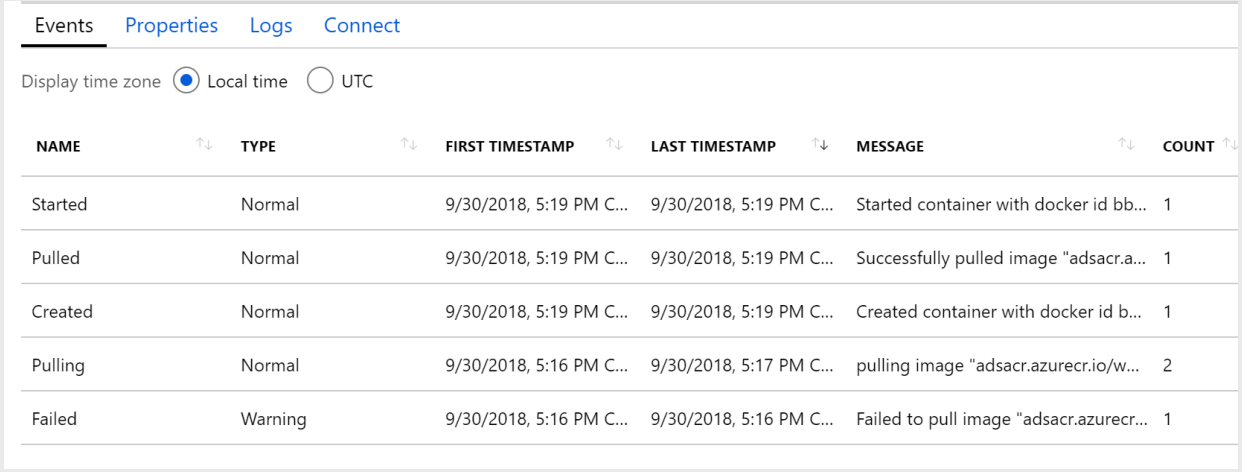
Azure Container Instance (ACI)

Azure Container Instances offers the fastest and simplest way to run a container in Azure, without having to provision any virtual machines and without having to adopt a higher-level service.

Run Containers directly from Azure Container Registry:

- Detailed Event Logging
- No additional Orchestration needed
- Integrates with Azure monitoring and diagnostics capabilities





Demo

Running an Azure Container Instance

Lab

Containerizing an ASP.NET application with Docker

https://github.com/007FFFLearning/MSDevSeriesSupport

Lab 3 – Quick Instructions

1. (Assumption is you finished Lab 1 – Lab 3)
2. Download the “Lab 4” Guide from GitHub (PDF)
3. Task 1: Install Docker
4. Task 2: Build CloudShop app container
5. Task 3: Run Cloudshop container
6. When having questions: msdevseriessupport@007FFFLearning.com

Section Take-Aways

1. Azure Container Registry is your repository of all in-Azure running containers

2. Azure Container Instance allows you to quickly run a containerized application

3. ACR and ACI work closely together

Microsoft

Azure

Questions?

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Microsoft

Azure

Next Module...

Azure Container Services

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