Introduction to Managed DevOps Pools

Revolutionizing deployment of infrastructure and apps in Azure

Link to demo content here:
azureviking-examples/aug-norway-introduction-to-managed-devops-pools a · haflidif/azureviking-examples (github.com)

Haflidi Fridthjofsson | About me

- IT specialist since 2011.
- Microsoft Certified Professional (MCP) since 2014.
- Microsoft MVP since 2023.
  - **Azure** - Infrastructure as Code
  - **Security** - Cloud Security
- Co-founder of the Microsoft Security User Group.

- Specialist within.
  - Azure Infrastructure.
  - Infrastructure as code.
  - Security.

- Free Time
  - Spending time with my family.
  - Check out and learn new technology
  - Bit of gaming, primarily FPS here and there when I got time.

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Azure DevOps Build Agents

Background & Challenges

Azure DevOps Build Agents | Background

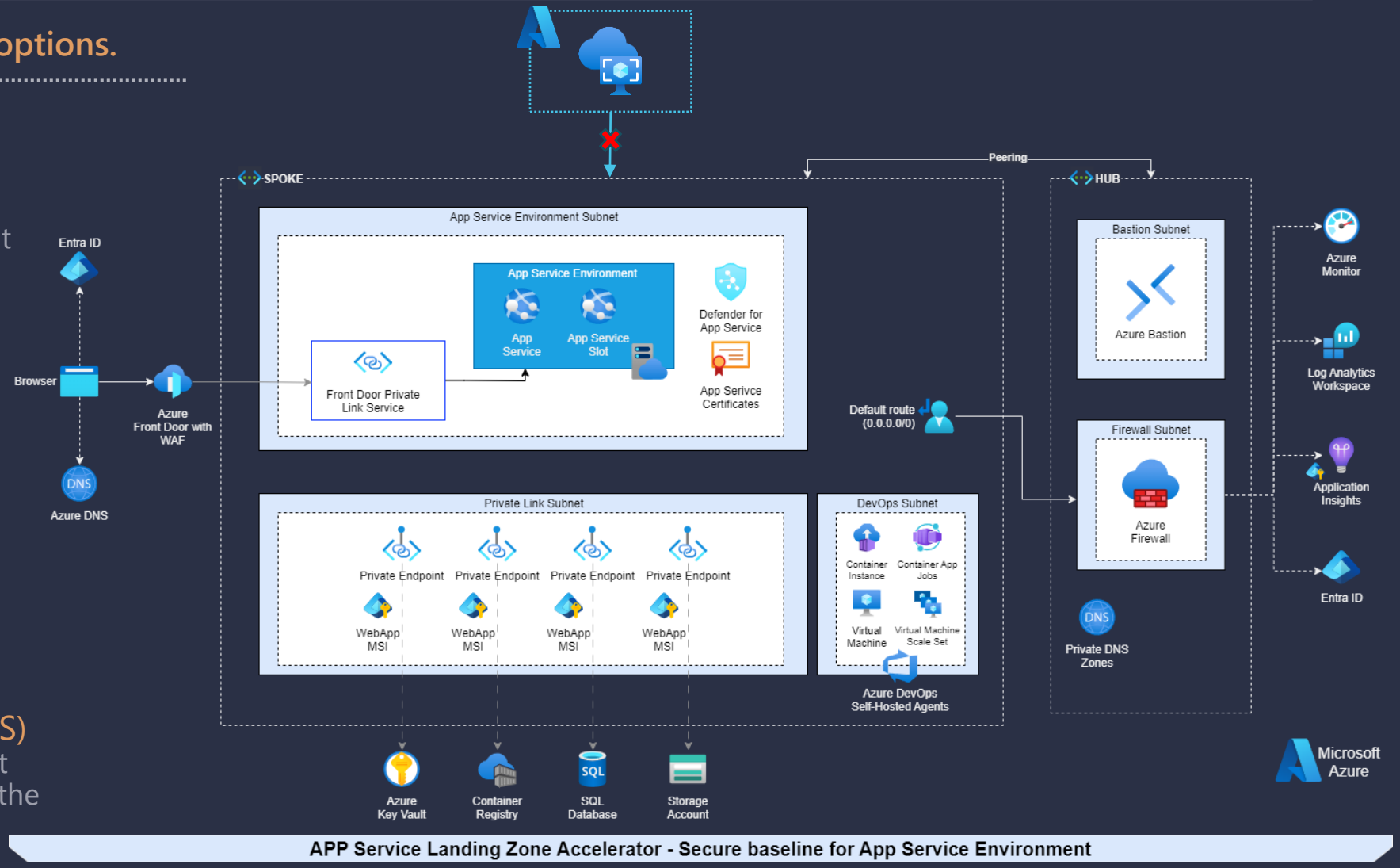
To run Azure Pipeline, you have 3 options.

Azure pipelines (Hosted pool)
Managed by Microsoft and most common and the fastest way to get something deployed within Azure but is **not** able to communicate with Private Networks.

Self-Hosted agent pool
Managed by Customers.
- → Virtual Machines (IaaS)
- → Container Instance (PaaS)
- → Container Apps Jobs w. Keda Scaler (PaaS)

Can communicate with private network.

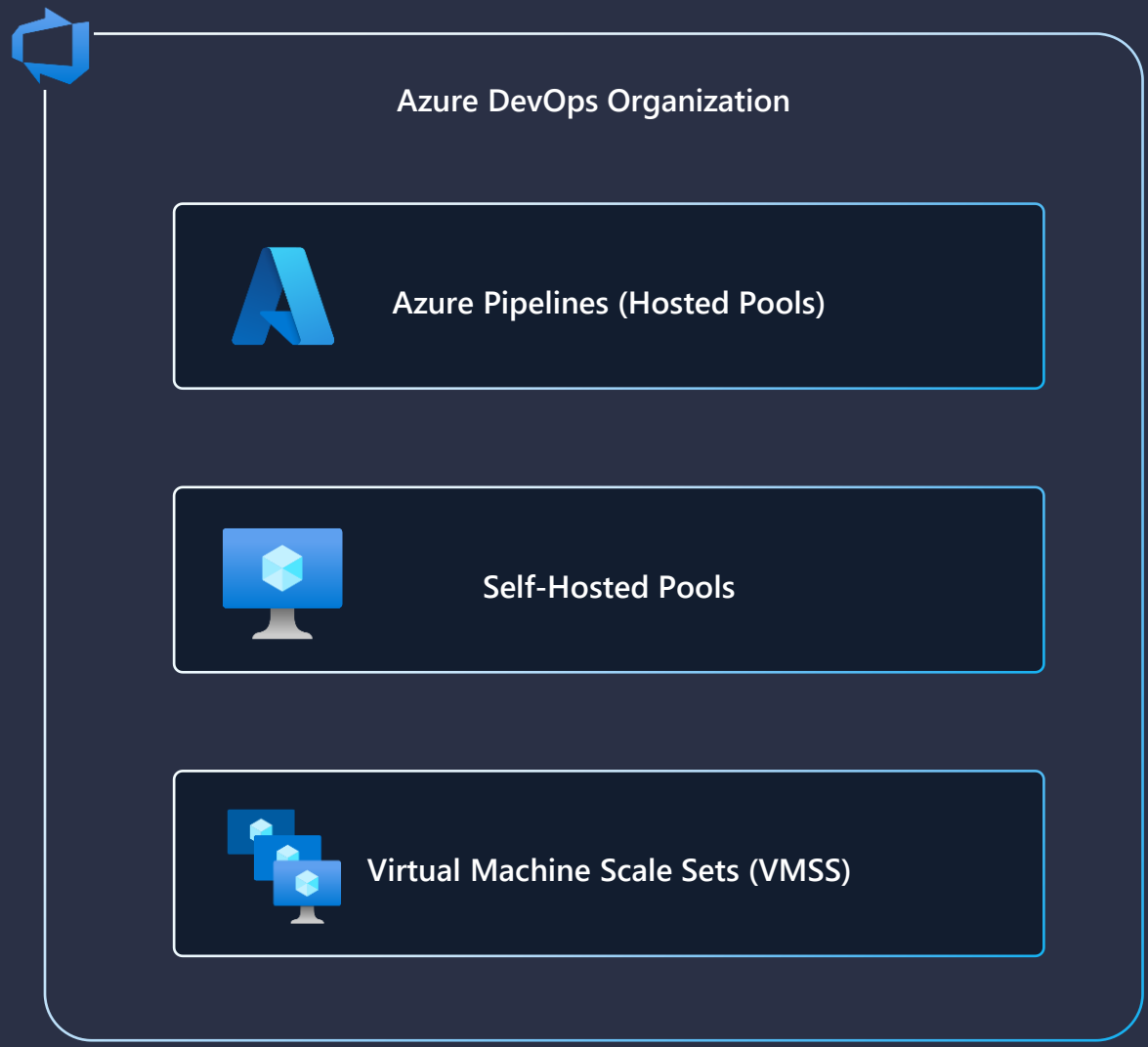
Virtual Machine Scale Sets (VMSS)
Most common way corporations host their semi-scalable agents that have the possibility to communicate with a private network.



Azure DevOps Build Agents | Challenges

Key challenges

- Azure Pipelines (Hosted Pool)
  - → Cannot install required software on these images.
  - → No easy way to communicate to your private network
  - → Limited resources of CPU, Memory and disk space
  - → No high-end VMs
- Self-Hosted Pools
  - → Tough to manage, upgrade and maintain.
  - → Depending on your backend infrastructure, you need to manage and upgrade your own VM/container images.
  - → Time consuming.
- Virtual Machine Scale Sets (VMSS)
  - → Known for performance issues, and poor scalability.
  - → Takes time to scale up from zero, if not running idle agents.
  - → Lack of support on some platform architectures.



Managed DevOps Pools (MDP)

Background, overview and getting started.

Managed DevOps Pools (MDP) | Background

One Engineering System (1ES)

There are over 100.000 Software engineers working at Microsoft.

2021 inventory of Microsoft's Azure DevOps agents Infrastructure estimated that there were over **5.000** Self-Hosted Pools with hundred of thousands agents running within Microsoft for diverse software development teams.

The Opportunity

→ Complex Infrastructure Management: Teams managing their own CI/CD infrastructure faced complexities, inefficiencies, bad support system, high cost, and security risks.

The Solution

→ 1ES Hosted Pools: A unified service developed by 1ES to streamline CI/CD infrastructure within Azure DevOps, increasing security, simplicity, compliance and governance.

The Benefits

→ Private Networking: Secure connections to private network resources.

→ Custom Images: Use of team-specific images with necessary prerequisites.

→ Business Continuity: Backup pools and agents in multiple Azure regions.

→ Stateful Agents: Improved pipeline performance with reusable agents.

→ Flexible SKUs: Selection of Azure compute families tailored to workload needs.

→ Standby Agents: Faster pipeline starts with agents on standby.

Managed DevOps Pools (MDP) | Overview

The basics

Underlying Infrastructure

→ Created within DevCenter & Projects in your own tenant.

→ VMs Hosted, managed and maintained entirely within Microsoft Azure Subscription.

Key benefits

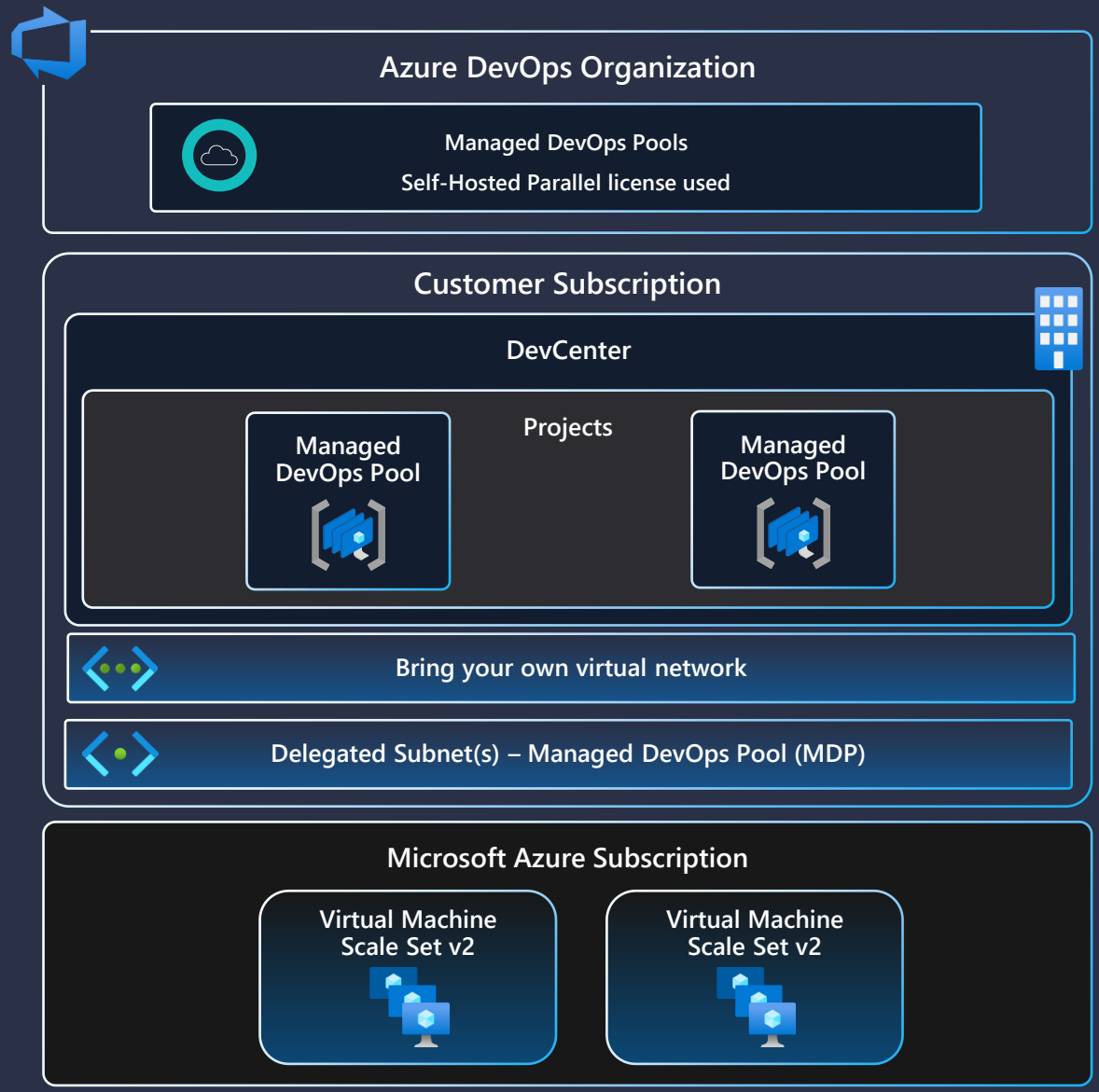
→ **Private Networking:** Can be injected within your own private virtual network.

→ **Scalable with scheduling:** You can schedule when agents need to be standby, how many agents you need and even go down to zero agents during idle time.

→ **Choose any Azure SKUs:** Depending on your hardware requirements and how powerful agents you need.

→ **Well-known Images:** Use Microsoft's (Azure Pipelines) well-known and standard Images.

→ **Cost efficient:** You only pay for what you use, included running and/or standby VMs.



Managed DevOps Pools (MDP) | Getting started

Deploying Managed DevOps Pools

Pre-requisites

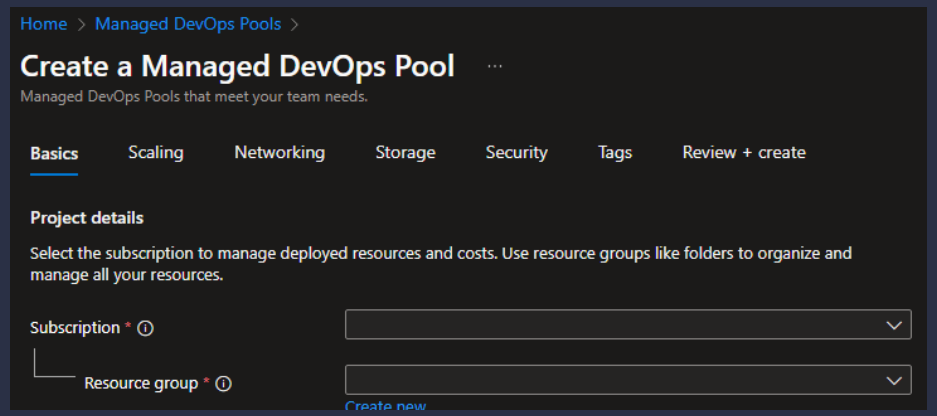
- → Mandatory:
  - → Azure DevOps Organization
  - → DevCenter and project within DevCenter.
- → Optional:
  - → Private Networking: Virtual Network with subnet(s) that is delegated to Microsoft.DevOpsInfrastructure/pools for **each** pool.
  - → Custom Images: Images hosted within Azure Compute galleries.

Infrastructure As Code.

- → Azure Verified Modules
  - → AVM Terraform Module already released. (link)
  - → AVM Bicep Module will be released in the coming weeks.
- → Bicep
  - → Native support, can be deployed directly with Bicep.
- → ARM Templates
- → Terraform
  - → Not yet supported within AzureRM Provider.
  - → Can be deployed with AzAPI provider.

Azure Portal

- → Create your Managed DevOps Pool directly within the Azure portal.



Demo

Getting started with Managed DevOps Pools.

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Managed DevOps Pools (MDP) | More information

Conclusion

Managed DevOps Pools

- → Now in Public Preview, no timeline yet for GA, but hopefully by EOY.
- → Highly scalable, customizable, cost efficient and powerful product to use with Azure DevOps.
- → Can be used within your own Private Network.
- → Infrastructure and agents hosted, managed and maintained entirely by Microsoft.

Managed DevOps Pools

Reference

- → **Demo Content:** azureviking-examples/aug-norway-introduction-to-managed-devops-pools a · haflidif/azureviking-examples (github.com)
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- → Managed DevOps Pools for Azure DevOps - Public Preview (microsoft.com)
- → Managed DevOps Pools – The Origin Story - Engineering@Microsoft

Thank You

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