From VMs to Managed Pools

Navigating Azure DevOps Agent Hosting

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Event organized by: Academic Partners Foundation

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Focus on Azure, Kubernetes, and DevOps

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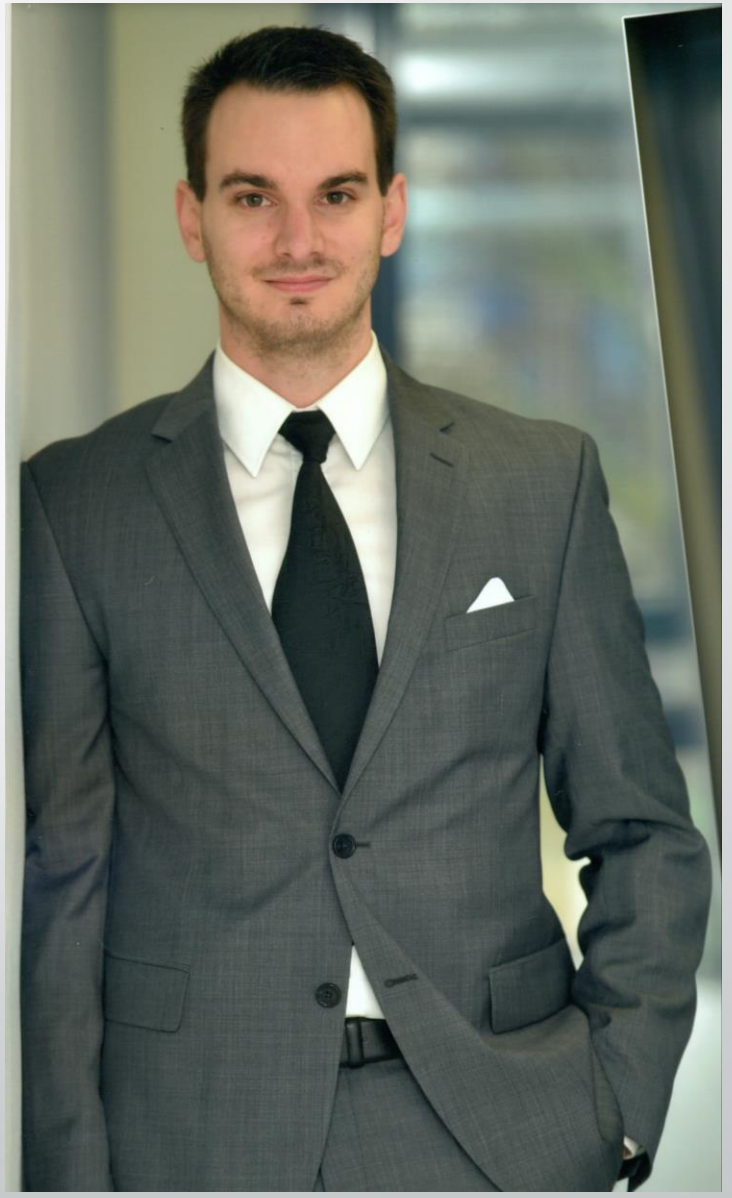

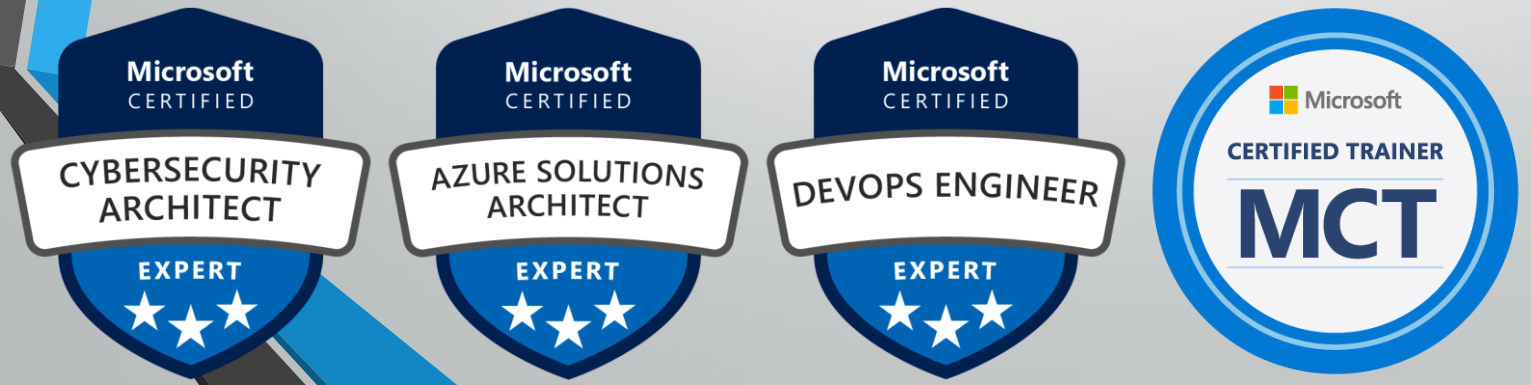

Agenda

Why do we need Azure Pipeline agents?

Microsoft-hosted agents

Self-hosted agents

- Hosting on VMs
- Running agents in containers
- Managed DevOps Pools

Why do we need Azure Pipeline Agents?

Azure Pipeline Agents

Execution of code

Software installation

Automation

Scalability

Audit logs of deployments

Microsoft-hosted agents
vs.
self-hosted agents

Microsoft-hosted Agents

Managed by Microsoft

Ubuntu, Windows and MacOS agents

Ease of use

```yaml
jobs:
- job: Linux
  pool:
    vmImage: 'ubuntu-latest'
  steps:
  - script: echo hello from Linux
- job: macOS
  pool:
    vmImage: 'macOS-latest'
  steps:
  - script: echo hello from macOS
- job: Windows
  pool:
    vmImage: 'windows-latest'
  steps:
  - script: echo hello from Windows
```

Microsoft-hosted Agents

Managed by Microsoft

Ubuntu, Windows and MacOS agents

Ease of use

Pre-installed software

Cost-effective

Microsoft-hosted Agent Limitations

Fresh agent for each pipeline job

Pre-installed software

Limited resources

No network integration

Limited execution time

Microsoft-hosted Agent Costs

1 agent with 1800 minutes for free per month

10 agents for free for public projects

$40 per parallel job with unlimited minutes

Self-hosted Agents

Full control over agent

Developers can install any software

Use powerful hardware

No execution time limit

Integration with your network

Linux, Windows and MacOS agents

Self-hosted Agent Limitations

Maintenance responsibility

Infrastructure costs

Scalability management

Monitoring and resource management

Self-hosted Agent Costs

1 free parallel job per organization

1 free parallel job per Visual Studio Enterprise license

$15 per parallel job per month

Infrastructure costs

Host Agents on VMs

Hosted Agents on VMs

"Go to" solution for self-hosting

Full control over infrastructure

Install any software needed

Allows for caching

Integrate agent into your network

Use Azure VMSS to automatically scale your agents

Hosted Agents on VMs

VMs and software need to be maintained

Hardware is often underutilized

Infrastructure can be expensive

Secure access needs to be configured and can increase costs

Run Agents in Containers

Run Agents in Containers

- Install needed software with Dockerfile

```
FROM ubuntu:24.04
ENV TARGETARCH="linux-x64"
# Also can be "linux-arm", "linux-arm64".

RUN apt update
RUN apt upgrade -y

RUN DEBIAN_FRONTEND=noninteractive apt-get install -y -qq --no-install-recommends \
    git \
    jq \
    libicu74 \
    curl \
    software-properties-common

RUN add-apt-repository ppa:dotnet/backports
RUN apt-get install -y dotnet-sdk-9.0

RUN apt -y install podman fuse-overlayfs
VOLUME /var/lib/containers

WORKDIR /azp/
```

Run Agents in Containers

Install needed software with Dockerfile

Easy to test locally

Most commonly used with AKS or ACA

Scale to 0 with KEDA

Run Agents in Containers

Minimal costs

Container know-how needed

Docker-in-Docker

GitOps might be better for Kubernetes

No caching

Azure Managed DevOps Pools

Managed DevOps Pools

Agent runs on Microsoft managed VM

Microsoft agent for Windows or Linux

Custom image with your software

Integrates into your network

Best option to self-host agents

GA since November 2024

Managed DevOps Pools

Only pay when the agents runs

- No caching
- Startup time ~3 minutes (up to 15 minutes)
- Cheap to use most powerful VMs

Use Standby agent for no startup time

Automatic scaling

More features to come this year

Demo
Managed DevOps Pools

Thank you for watching!

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