From VMs to Managed Pools

Navigating Azure DevOps Agent Hosting

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Agenda

- Introduction to Azure Pipeline Agents
- Microsoft-hosted agents
- Self-hosted agents
- Managed DevOps Pools

Wolfgang Ofner

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Focus on Azure, Kubernetes, and DevOps

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Why do we need Azure Pipeline Agents?

Azure Pipeline Agents

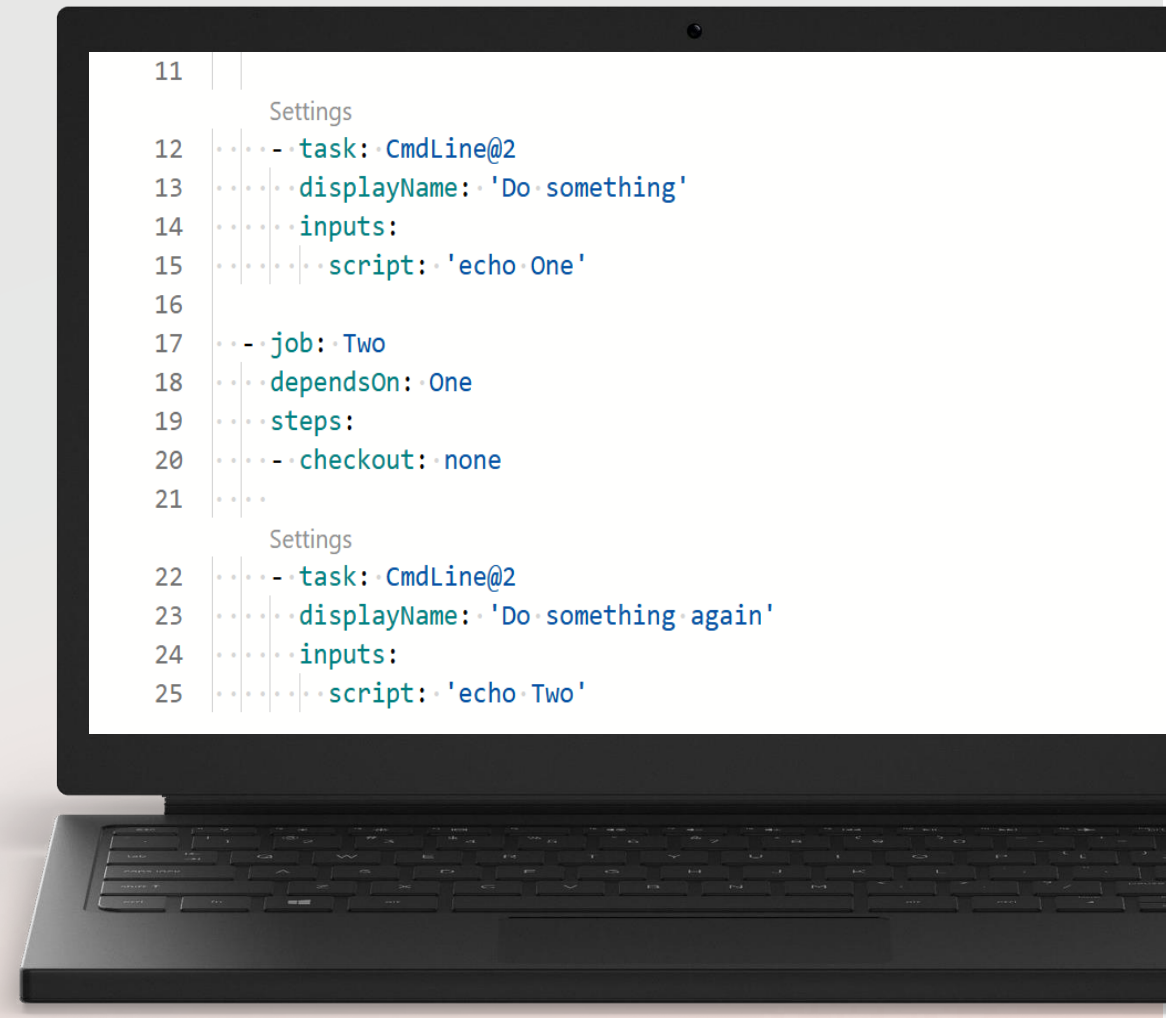
Execution of code

Required tooling

Fast and repeatable steps

Scalability

Audit logs



Microsoft-hosted Agents
vs.
Self-hosted Agents

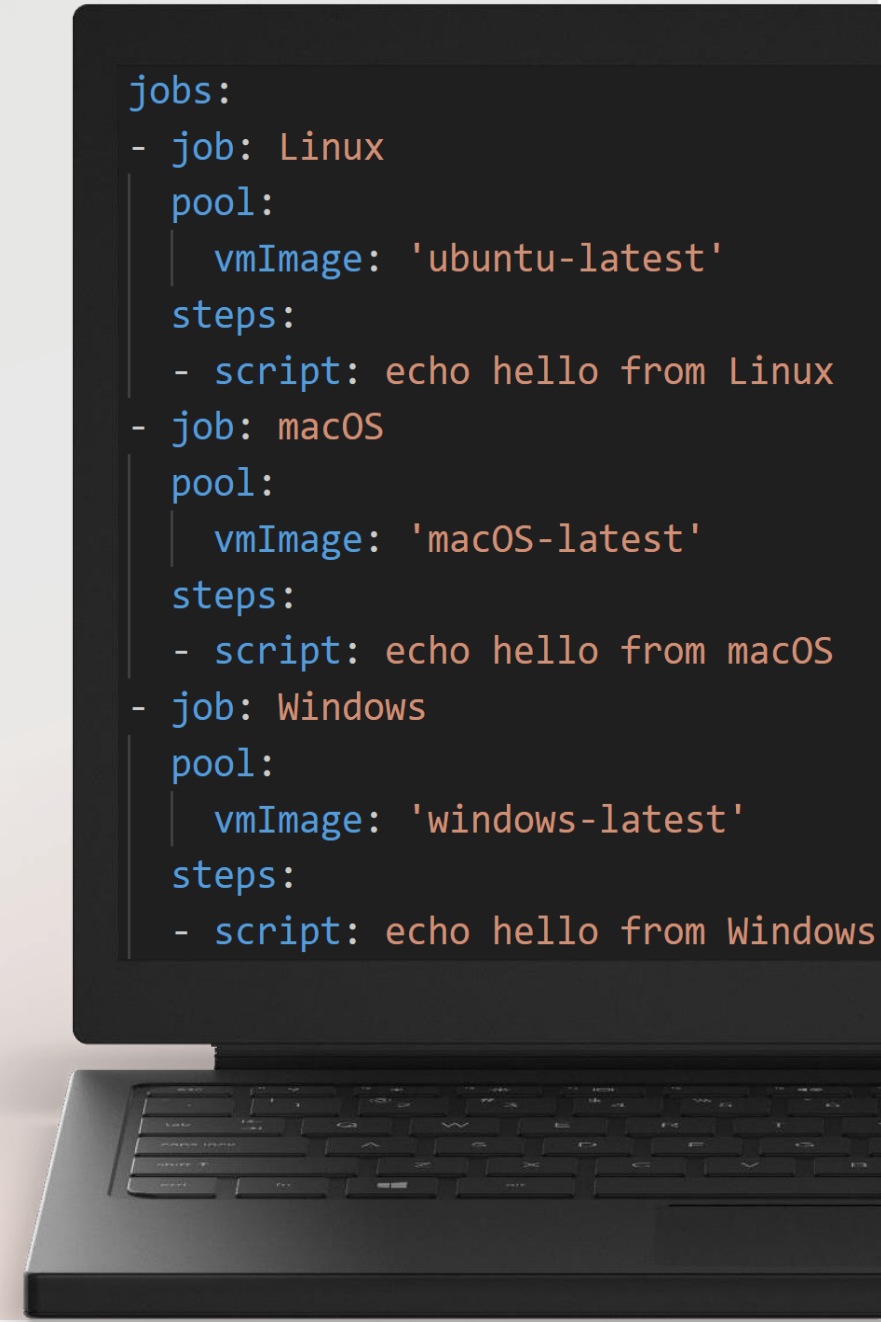
Microsoft-hosted Agents

Ubuntu, Windows and MacOS

Ease of use

Pre-installed software

Cost effective



MS-hosted Agents 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 min / month

$40 per parallel job with unlimited minutes

10 agents for free for public projects

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

Self-hosted Agent Limitations

Maintenance

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

Allows for caching

Integrate with your network

Use Azure VMSS for scaling

Hosted Agents on VMs

Hardware is often underutilized

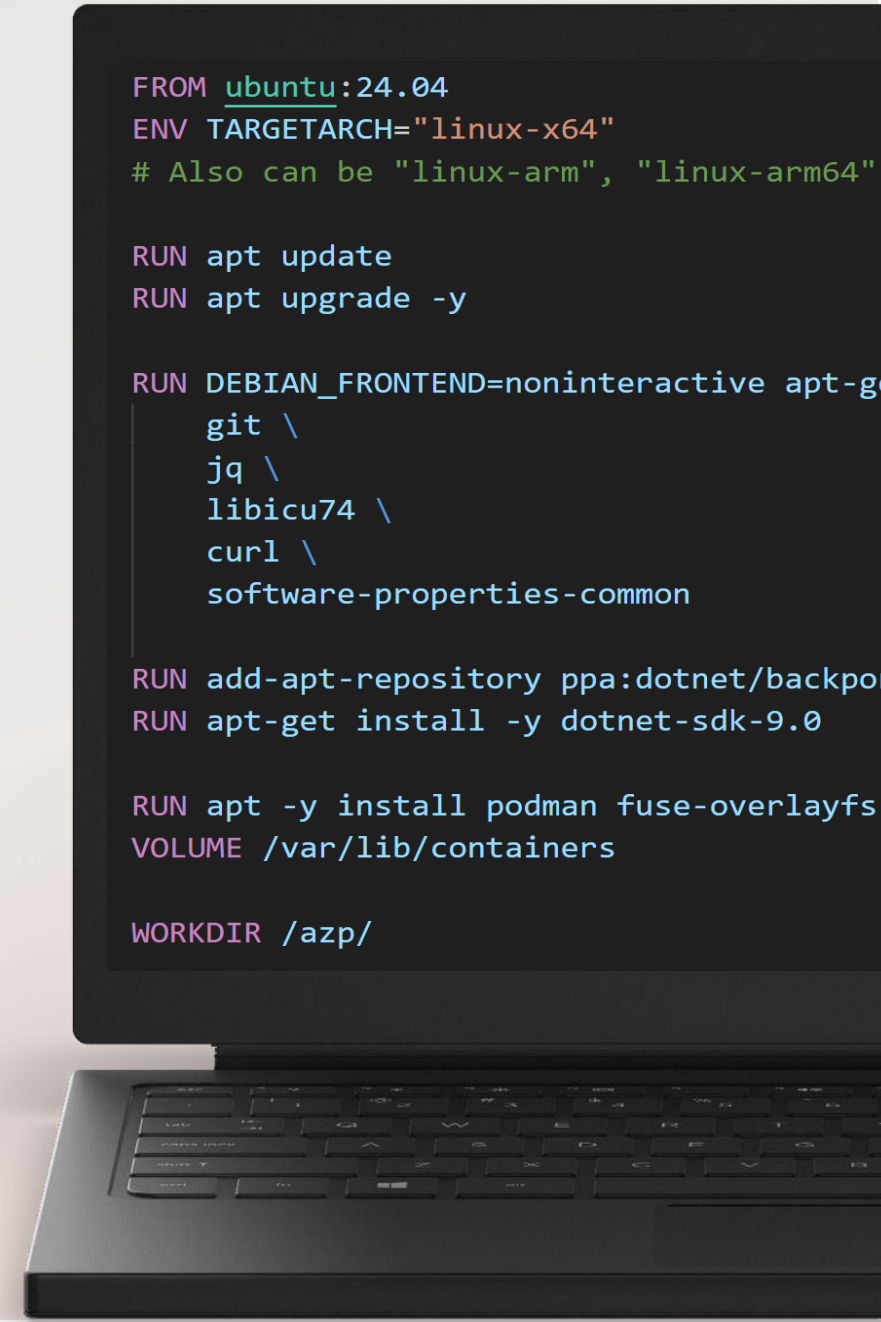
Infrastructure can be expensive

Secure access needs to be configured and can increase costs

Run Agents in Containers

Run Agents in Containers

Install needed software in 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/
```

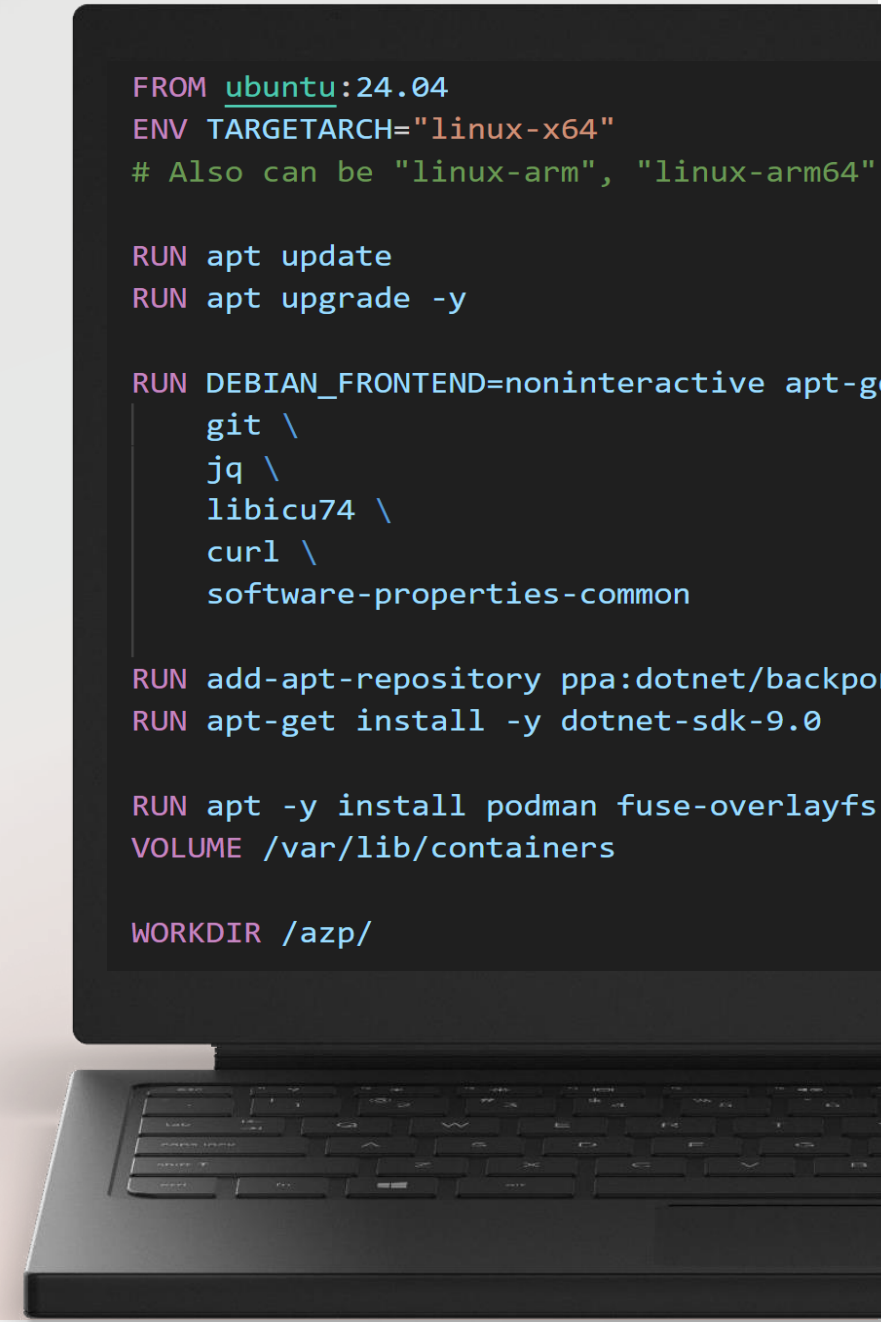
Run Agents in Containers

Install needed software in Dockerfile

Easy to test locally

Use with AKS or ACA

Scale to 0 with KEDA



Run Agents in Containers

Minimal costs

Container know-how needed

Docker-in-Docker

No caching

Managed DevOps Pools

Managed DevOps Pools

Agent runs on Microsoft managed VM

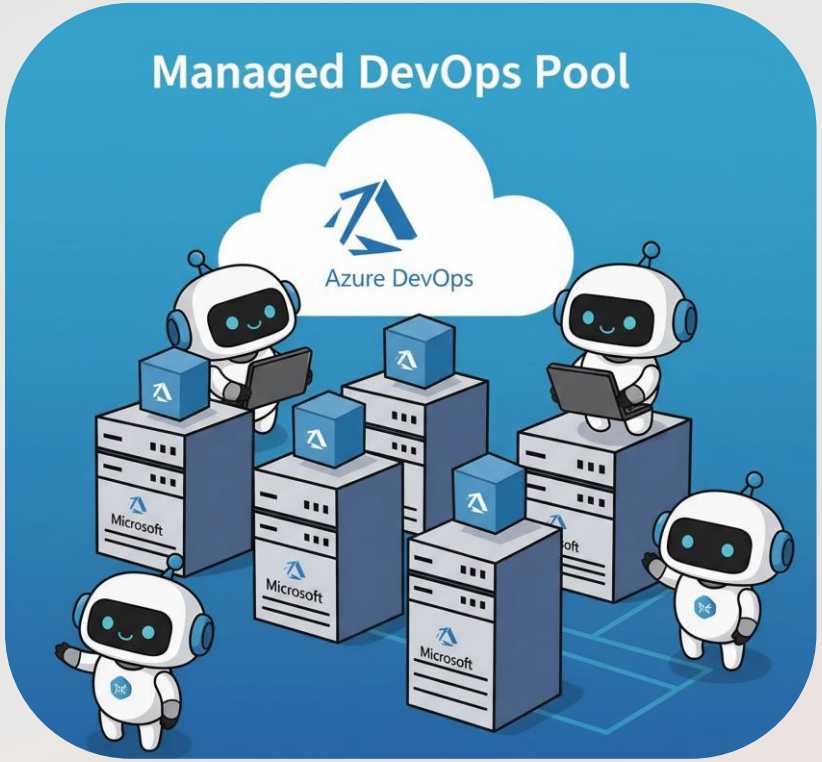
Custom image with your software

Integrates into your network

Best option to self-host agents

GA since November 2024

Managed DevOps Pools



Only pay when agent runs

- No caching
- Startup time ~3 minutes
- Cheap to use most powerful VMs

Use standby agent for no startup time

Automatic scaling

Demo
Managed DevOps Pools

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