



# Managing Hybrid Infrastructure

With PowerShell

Matthew Dowst



# Matthew Dowst

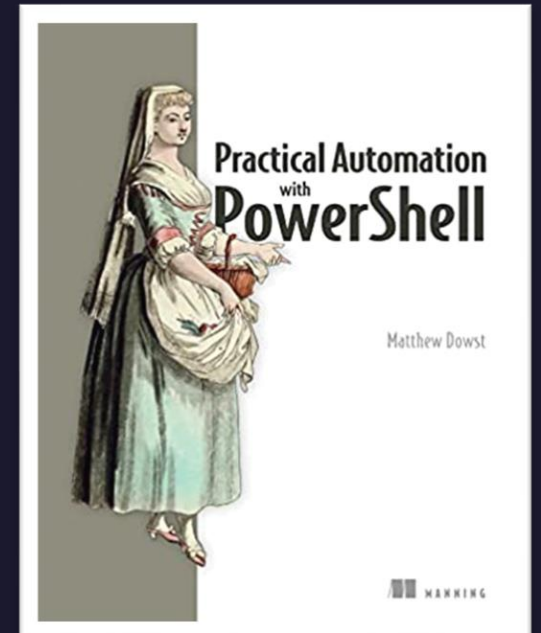
Managing Consultant-Automation Solutions



Blog - [dowst.dev](https://dowst.dev)

Newsletter - [psweekly.dowst.dev](https://psweekly.dowst.dev)

Twitter/LinkedIn/GitHub - [mdowst](#)



# Remote management options



## PowerShell 5.1

- WSMAN
- Windows Only
- LAN Only



## PowerShell 7

- Open SSH
- Cross-platform
- LAN Only



## Hypervisor

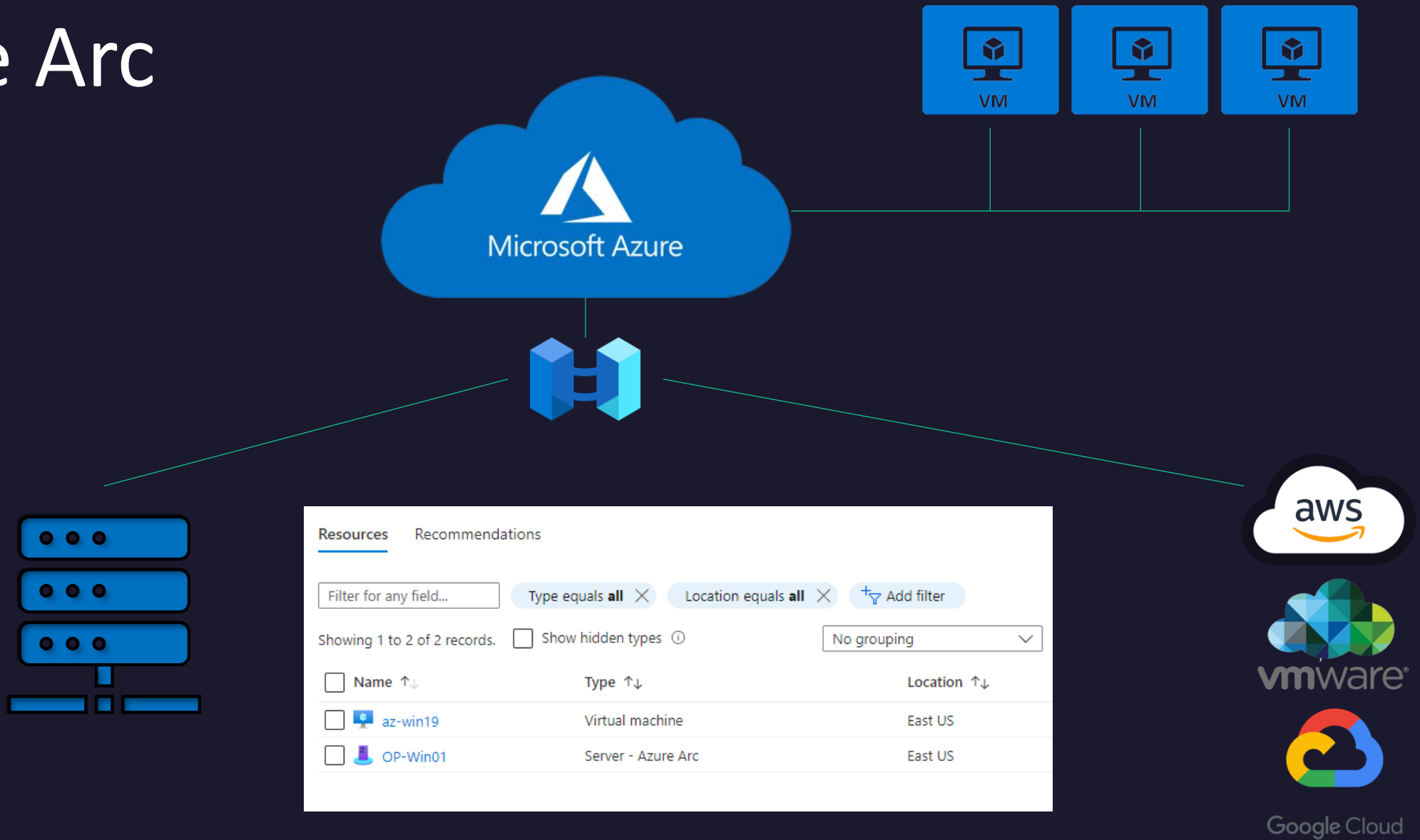
- Invoke-VMScript
- PowerShell Direct
- LAN to Host



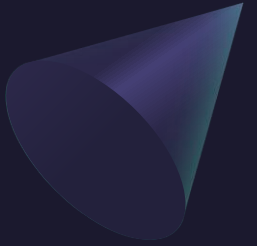
## Azure

- Cross-platform
- Cross-protocol
- Anywhere

# Azure Arc



# Azure Remote Execution Options



## Azure VM Run Command

- Windows Server 2008 R2 SP1 +
- Ubuntu LTS
- Debian
- CentOS Linux
- SUSE Linux Enterprise Server
- Red Hat Enterprise Linux (RHEL)
- Amazon Linux 2
- Oracle Linux
- openSUSE
- Flatcar
- CoreOS

## Arc Script Extension

- Windows Server 2008 R2 SP1, 2012 R2, 2016, 2019, and 2022
  - Desktop and Server Core Only
- Ubuntu 16.04, 18.04, and 20.04 LTS
- Debian 10
- CentOS Linux 7 and 8
- SUSE Linux Enterprise Server (SLES) 12 and 15
- Red Hat Enterprise Linux (RHEL) 7 and 8
- Amazon Linux 2
- Oracle Linux 7 and 8

## Hybrid Runbook Worker

- Windows Server 2008 R2 SP1, 2012 R2, 2016, 2019, and 2022
  - Desktop and Server Core Only
- Ubuntu 14.04, 16.04, 18.04, and 20.04 LTS
- Debian 6, 7, and 8
- CentOS Linux 5, 6, 7, and 8
- SUSE Linux Enterprise Server (SLES) 12 and 15
- Red Hat Enterprise Linux (RHEL) 5, 6, 7, and 8
- Amazon Linux 2012.09 to 2015.09
- Oracle Linux 6, 7, and 8

# Support

	Azure VM Run Command	Azure Arc Script Extension	Hybrid Runbook Worker
Languages	PowerShell/Shell	PowerShell/Shell	PowerShell/Python
Custom Script	Yes	Yes	Kind of
Parameters	Yes	Yes	Mostly
Agent	No	Yes	Yes
Authentication	System/Named Account	System	System/Named Account
On-Prem/Other Cloud	No	Yes	Yes
Current operations	1	1	50
Network requirements	443	443*	443

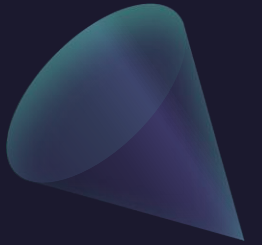
# Azure VM Run Command

## Invoke-AzVMRunCommand

- Allows ad-hoc script execution
- Supports parameters
- Output not saved

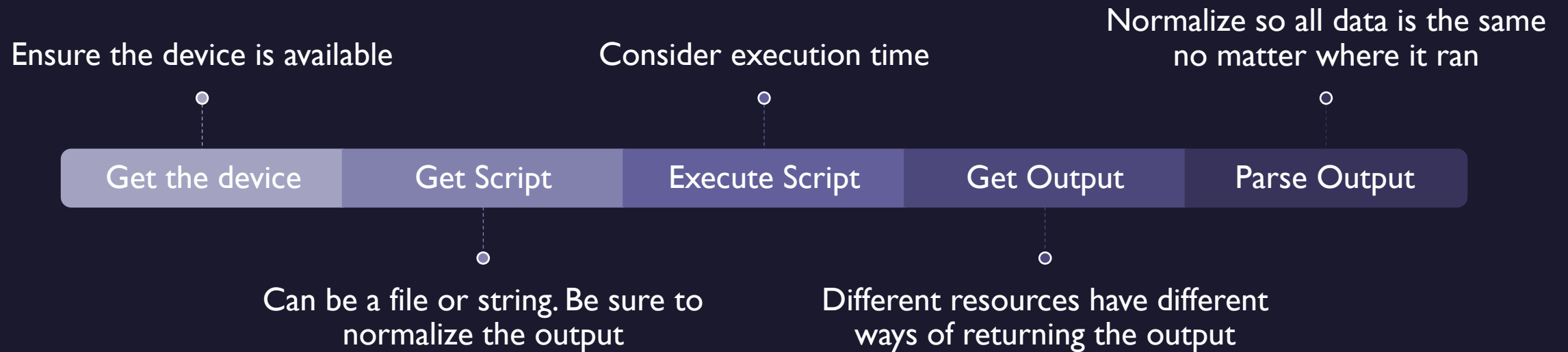
## Set-AzVMRunCommand

- Allows ad-hoc script execution
- Supports parameters
- Output is saved
- Supports Run As





# Process







# Summary

With Azure Arc and PowerShell, you can access and manage your servers from anywhere any time.

# Thank You

All scripts are available at: <https://github.com/mdowst/Presentation-Materials>

Blog: [dowst.dev](https://dowst.dev)

PowerShell Weekly: [psweekly.dowst.dev](https://psweekly.dowst.dev)

Find me: [linktr.ee/mdowst](https://linktr.ee/mdowst)

